

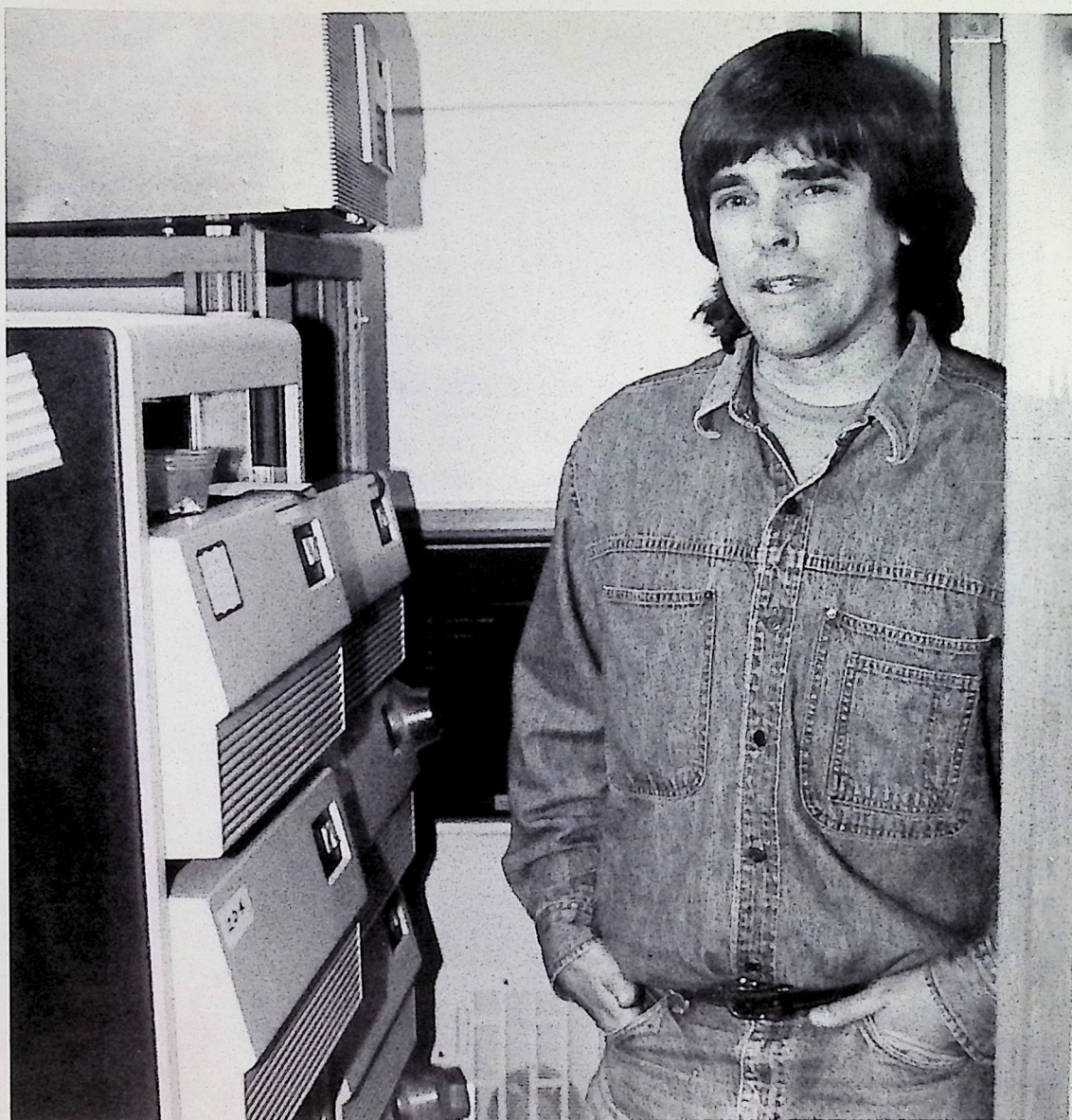
June, 1991

\$3.95

BOARDWATCH

MAGAZINE

Electronic BBS and Online Information Services



**CLIFF FIGALLO, Executive Director
Whole Earth 'Electronic Link
THE WELL**

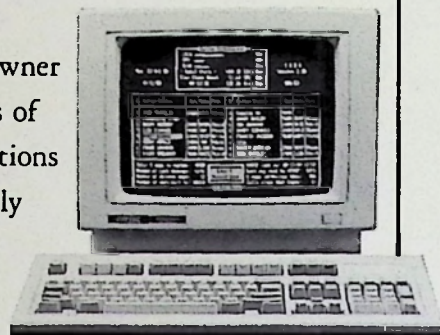


Multuser BBS with dBASE

Excellence. You know it when you see it.

You immediately recognize excellence in your first encounter with The Bread Board System (*tbbs*) Information Manager. The smooth responsiveness you feel when you connect with *tbbs* lets you know that you have come into contact with something beyond the ordinary.

When you talk to the owner of *tbbs*, you will hear stories of the ease with which applications can be developed. The nearly unlimited power which is still easy to mold and use.



The control console monitors performance and puts you in command of a busy, multiuser system.

Reliability may only be mentioned if you ask, because the owner of *tbbs* takes for granted that multiuser communications systems *Should* be this easy to construct and require no special attention to be available at all times.



Up to 32 lines and still easy to use.

Single User *tbbs* \$299.95, 16 User *tbbs* \$895.00, 32 User *tbbs* \$1,495.00

Expansion modules allow integrated multiuser dBASE compatible programs (*tdbs*) and FidoNet compatible net mail.

Call for more information and access to a demonstration system. (303) 699-6565.

Complete, easy-to-follow documentation



dBase is a trademark of Ashton-Tate Corporation.

eSoftTM

About The Possibilities

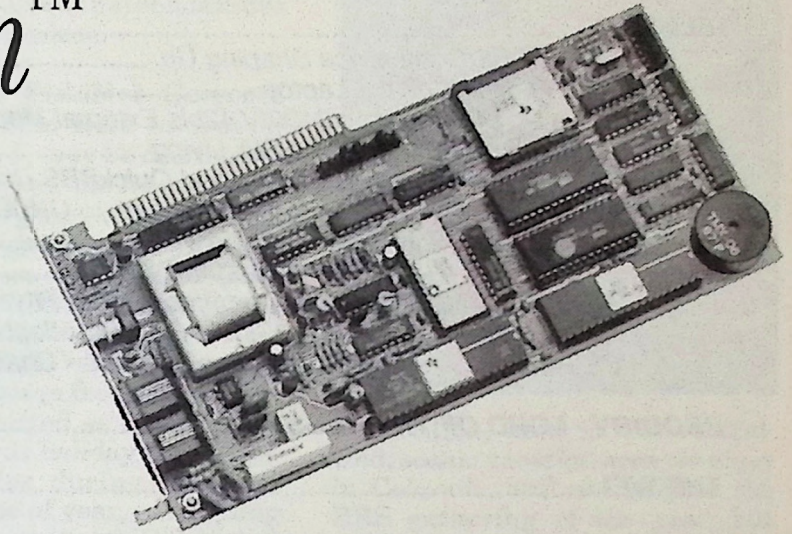
Think

tbbs and *tdbs* allow a level of performance and ease of implementation never before available at any price. You get rapid custom system development combined with the reliability inherent in the low complexity single PC and DOS-only environment. Discover the possibilities only *tbbs* can provide.

eSoft, Incorporated
15200 E. Girard Avenue
Suite 2550
Aurora, CO 80014
(303) 699-6565

\$169 – 9,600 – 38,400 – bps *SpeedModem*TM

- *Incredible But True!*
- *Technology Price Breakthrough*
- *More Callers – Faster Service*
- *More Attractive BBS*



Affordable 9600 bps Modem

CompuCom Corporation announces the *SpeedModem*TM *Champ*TM 9600 bps modem at the incredibly low price of \$169. The Champ's raw speed is 300-9600 bps and it features data compression throughput up to 38,400 bps!

Although 9600 bps modems have been available for a number of years, only a few percent of the modems in use today operate at this high speed. Their cost is prohibitive to the average modem user. CompuCom has changed that. They are making high speed modems affordable to ALL, not just the few percent who could afford them.

The *SpeedModem* is compatible with all modems up through 2400 bps and MNP5. At 9600 bps or higher it is similar to other popular modems, it will communicate only with one of its own technology. However, at costs competitive with 2400 bps MNP modems it's like buying a 2400 bps modem and getting 9600 bps FREE! Bob Mahoney of EXEC PC sums it up:

"The CompuCom *SpeedModem* provides all the utility of a high quality 2400 bps MNP5 modem, but it gives 9600 bps in the package. With that, it is priced below most modems that offer only the 2400 bps (MNP) speed. Instead of buying a modem like that for \$169, why don't they buy a

BBS Advantage

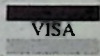
real 9600 bps that also does a good job at 2400 bps MNP5? The *SpeedModem* is such a modem."

Sysops are beginning to realize that the *SpeedModem* is the only opportunity for most of their users to join the ranks of the high speed Top Guns. Thus they are adding it to their service. Although the *SpeedModem* has been in production only a short time, hundreds of BBSs are online including EXEC PC and Rusty n Edie's.

More BBSs are coming online daily. For the Sysop it means a faster, more popular BBS, and a happy caller. CompuCom also helps you promote your BBS. Call for details on our Sysop program.



Call Now **800-ACT-ON-IT**
(800-228-6648)



5-Year Warranty. 30-Day Money Back Guarantee.

COMPUcom

When Speed and Reliability Count

1180-J Miraloma Way, Sunnyvale, CA 94086 - 408.732.4500 Fax 408.732.4570

BOARDWATCH MAGAZINE

EDITOR'S NOTES.....	5
LETTERS TO THE EDITOR.....	6
TELEBITS.....	8
August BBS Conference Shaping Up.....	8
AT&T Packet/Cellular Laptop.....	9
Supra Corp Introduces 2400/V.42bis External Modem.....	10
Steve Jobs NeXT Machine Still Living.....	10
TBBS Offers Discount to Orphaned QuickBBS Users.....	10
Windows Software Provides TCP/IP Link to UNIX Systems.....	11
Wildcat! Sysops to Meet in California.....	12
BBS Pavilion Planned for Fall COMDEX.....	12
Resource Directory Makes Computers More Physician-Friendly.....	12
Hayes Introduces External ISDN 1 System Adapter.....	13
US Robotics Acquires Touchbase Systems - Changes Sysop Discount Program.....	14
PRODIGY - LORD OF THE FILES.....	15
THE WELL.....	18
COMMUNICATIONS BASICS - ANSI Terminal Emulation - Alan Applegate.....	21
AMERICA ONLINE DEBUTS FOR PC - Alan Applegate.....	24
CYBERSPACE AND THE LEGAL MATRIX: LAWS OR CONFUSION? - Lance Rose.....	27
WHO PRODUCED THE FIRST PUBLISHED BBS LIST?.....	32
INTERNET NEWS.....	34
CERFNet Access for Boardwatch Readers.....	34
Find a Friend on Internet - The Knowbot Online E-Mail Directory.....	35
Voyager Images Available on CD-ROM.....	35
Apple II BBS Offers Internet Access.....	35
Library of Congress Online.....	36
LONG DISTANCE USA.....	36
Ciarcia's Circuit Cellar BBS.....	36
Fidonet/Relaynet Connection for Major BBS.....	38
Order Flowers Online.....	38
K12NET - LINKING BULLETIN BOARDS FOR EDUCATION.....	39
List of K12Net BBS Systems.....	41
Boardwatch List of Lists.....	43
BBS Classified Ads.....	44
Boardwatch National Select List of BBS.....	46

BOARDWATCH MAGAZINE - Copyright 1991 Jack Rickard - All Rights Reserved.

ISSN: 1054-2760. Volume V - Issue 6, June 1991. Boardwatch Magazine is published 12 times per year at an annual subscription rate of \$36 (\$69 in Canada/Mexico, \$99 overseas). Address corrections or subscription orders may be made by voice telephone at (303)973-6038. The Boardwatch Online Information Service is available at (303)973-4222 (2400 bps) and (303)933-2286 (HST/V.32 9600 bps). Address U.S. Mail correspondence to Boardwatch Magazine, 5970 South Vivian Street, Littleton, CO 80127. GEnie: JACK.RICKARD. CompuServe: 71177,2310. Fidonet: 104/555 MCI Mail: 418-7112. Internet jack.rickard@csn.org. FAX Telephone: (303)973-3731.

EDITOR'S NOTES

The online world seems to be maturing well. Like observing a person moving from childhood to adolescence, there are some poignant, as well as painful moments in the process. The online world is not so innocent as it perhaps was. On the other hand, it becomes more powerful and capable in the process.

In recent issues, we've attempted to cover some of the increasingly important legal issues involving electronic bulletin boards and online services. It is perhaps appropriate, at this time, to enlist some qualified aid in this area. Lance Rose is a successful attorney specializing in high technology and computer issues and has done some remarkable work for online services and information centered corporations. He's currently producing the revision to SYSLAW, The Sysop's Legal Manual. Lance is a partner in the New York City firm of Greenspoon, Srager, Gaynin, Daichman & Marino. We're most pleased to carry his overview column this month covering some of the legal issues facing electronic bulletin boards and online service.

The growth in the online industry has not gone unobserved. We heard through the grapevine that PC Magazine, arguably the computer industry's largest and most successful publication, is planning a spread on BBS software in an autumn issue. And The Interface Group, the people who put on COMDEX, have enlisted our aid to test the waters for a special BBS PAVILION at the fall COMDEX in Las Vegas this October. Interest among BBS software vendors, and several modem manufacturers, as well as a couple of the larger commercial BBS operators, appears very enthusiastic. It could very well shape up as an enormous "coming out party" for the BBS industry at the world's largest computer trade show.

While this would be a positive thing, HAM radio operators have their Dayton Hamfest, drag racing enthusiasts have their Grand Nationals, tennis has its Wimbledon, baseball has a Hall of Fame AND a World Series, no doubt even baseball card collectors have a massive "tradeoff" somewhere. The BBS world needs an annual rendezvous and gathering place.

This year's FidoNet Convention, to be held here in Denver August 15-18, may be destined to be IT. Already in the first week of May, show organizers report they have more signed registrations in hand than have ever ATTENDED any previous BBS convention or gathering, including the first Fidocon, held in Colorado Springs. System operators from around the country, attracted as much to the idea of a scenic holiday in the Colorado Rockies during it's most beautiful time of year, are signing up with little regard to FidoNet at all. We've heard directly from several large PCBoard operators bent on making the trip.

Tom Jennings, the man who invented FidoNet and the only BBS aficionado to receive the Fleugleman award for technical excellence, will be on hand to describe how it all started. The Electronic Frontier Foundation is sending a representative to present their work in helping to shape the legal climate of the online world. Steve Jackson, whose BBS was closed down by the Secret Service in a now famous legal blunder, will be on hand to tell the inside story. Dave Hughes will be there to discuss the National Research and Educational Network proposal and his work with online education. Tim Pozar, author of UFG-ATE, will present a workshop on connecting your BBS system to the Internet.

While we're not affiliated with the group producing this show, we will be there with a Boardwatch hospitality suite, and I've agreed to do a song and dance number on techniques for promoting your BBS and making it profitable. In essence, we think the Denver BBS



Convention, held in the centralized, scenic vacation area we enjoy in Colorado, will not only be the BBS gathering of the year, but could and should be an annual event. We intend full measures to make it so.

Our Internet coverage continues. It's a bit off the BBS path in a way, but we think the Internet and BBS worlds will have converged, or perhaps collided, by the time anyone takes us to task on it. Peel away all the mystery, and it is the world's largest BBS - or network of BBS, or something. The only way we can make it rational for our readers is to take it apart a piece at a time.

In this issue, we describe a fascinating e-mail directory service called Knowbot that offers at least a partial solution to the intricacies of e-mail addressing, and a system, that appears for all intents and purposes to contain a bibliographic index to the entire Library of Congress. On the low end, a group of Apple II BBS operators are, and I kid you not, offering e-mail access to Internet and carrying Usenet news groups online. I would wet myself in excitement - if I only had the time.

Jack Rickard
Editor and Publisher,
Boardwatch Magazine

LETTERS TO THE EDITOR

Readers may forward comments to Letters to the Editor, Boardwatch Magazine, 5970 South Vivian Street, Littleton, CO 80127.

Dear Sir:

I believe that the BBS, related on-line services, and magazines such as "Boardwatch" magazine will be of increasing value and importance with each passing year.

It is due to perhaps a shared vision of this "new technology" and its potential benefits, that I am more than a little surprised to find that you are carrying an ad for a BBS that obviously appeals to people as a meeting place that has a primary focus on "gays", i.e., The advertisement for "The Backroom".

I don't know if you intend to continue to appeal to serious BBS operators, and I don't want to offend anyone, but a magazine such as Boardwatch should not be running ads that promote "sexual preferences" unless you want to risk losing subscribers and advertisers.

As an information Services professional and a potential BBS operator, I feel that this ad is out of place and not in keeping with the quality of vision that is otherwise expressed in other areas of your magazine. I can't begin to imagine seeing this type of ad, presented in this manner, in a magazine such as "PC MAGAZINE", "PC COMPUTING" or any other serious and responsible industry publication that is related to On-line computing, Information Science, Data Processing, etc.

At any rate, I will look forward to your growth as a unique publication that is providing a valuable service. I only hope that your growth in subscribers will allow the development of an Editorial and Advertising policy that is based on professional standards.

I hope that the image you project to those who are new to the BBS world reflects a balance and if I may be so bold, "values", that are shared by most subscribers and business people. If this is not the case, you should not be surprised to find out that you may have competition from other magazines whose content and advertising appeal to a broader subscriber base of enthusiasts and industry professionals.

Sincerely,
Don Humphreys

Don:

I've encountered this once before but never in such brutally close-minded force. Your letter covers a lot of ground, so let's knock off a couple of items at a time.

Actually, an ad for Back Room DOES appear in PC Magazine. Another gay system is advertised in BYTE. So I'm thoroughly confused by your allusion that these "responsible" publications don't carry such ads. Demonstrably they do. And if you'll bear a cliché, if all the other magazines go jump off a cliff, I reserve the right to observe from my lawn chair, gin tumbler akimbo. But it so happens, in this instance they do carry advertising specifically from gay bulletin board systems. I cannot imagine any rational tie between a publication being described as a "serious and responsible industry publication" and whether or not it accepts advertising from some particular ethnic, social, or sexual group.

On the specific topic of gay bulletin board systems, Boardwatch is about electronic bulletin board systems - not sex. Our read on this is that the gay community has found advantage in BBS technology, as have many other segments of our society. We condone the use of BBS technology as a tool for all political, sexual, social, technical, scientific, or entertainment purposes - because we view it as a tool for the re-creation of society as a whole without the conventional encumbrances of time and distance. And

we try to portray it editorially as it IS as accurately as we can, not as we, or anyone, might wish it to be. If we ban gays, then what do we do about environmentalists, peace activists, feminists, white supremacists, politicians, bureaucrats, civil rights activists, liberals, democrats, Bassett hounds, pralines, and all the other assorted ills of society.

Basically, in publishing a magazine about BBS technology, we do not accept responsibility for a thousand judgments on whose cause is just, and whose is not, which political view is the correct one, and whose is not, or even whose sexual preference is acceptable, and whose is not. We beg the entire question. Boardwatch is about how different groups use BBS technology to further their own cause - regardless of whether it is a just cause or an appropriate one.

We have two tests regarding advertising and they are very simple to apply: Does the ad have anything directly to do with PC communications? Does the ad attempt to mislead or defraud any of our readers? If the answer to the first is yes, and to the second no, then we accept it.

While we do accept ads from those persistent enough to chase us down and make us take money, Boardwatch was designed specifically and intentionally as a reader supported publication. And to this day, we enjoy the luxury of being able to drop ALL ads at any time without missing a single issue or endangering the life of this magazine one whit. And at this stage in this industry, I've got to believe that some quality competition from other magazines covering the on-line world would be of enormous economic advantage to Boardwatch (Business 101 - Formative Stage of an Industry). In a very real sense, we've been the only savage on the buffalo hunt.

To my direct knowledge and experience, the individual running Back Room is a gentleman and scholar of the highest order, his system is widely recognized as not only technically excellent, but an

innovative leader in the world of networking BBS systems globally. And I'm quite secure in neither defending, attacking, nor even discussing his sexual preferences, moral mores, or preference for Coke or Pepsi. In an overwhelming and all encompassing sense, I'm both unqualified and uninterested in doing so.

If that position costs us readers, we'll fold. My kids will starve, my dog will howl, and I'll tear all my hair out, but that's the way it is.

Jack Rickard

Dear Jack:

I recently connected with the Channel 1 BBS in Cambridge, MA, and, to my great delight, stumbled across the May issue of *BoardWatch Magazine*. This was my first glance at your excellent publication.

While I am a long-time Macintosh user, and don't know beans about the PC world, I found your publication extraordinarily appealing and interesting. Having just purchased a 2400bps v42.bis modem, I enjoyed the articles on new modem offerings, and was also thrilled to see you addressing the issues and principles involved in the Electronic Frontier Foundation's efforts. I was also intrigued with your coverage of BBS systems in the Soviet Union, and your article on the INTERNET system was the first I've ever read that held my interest, and didn't cause a glaze to form on my eyes!

I am chagrined, though, that *BoardWatch Magazine* is not available on the Boston Computer Society's BBS system. I believe it could capture the interest of many, many callers here in our area who cannot afford to access paid-services like Channel 1. I had to resist the urge to not transgress on your copyright by uploading selected portions of the May issue to the BCS BBS, as I wanted so much to share them with my friends and others on my "home" system. Has

anyone from BCS approached you about getting *BoardWatch Magazine* up on the BCS system?

Thanks so much for a thoughtful, insightful and "meaty" publication. I look forward to upcoming issues.

Sincerely,

Jim McKee.

Dear Jim:

Delighted we appear to have hit the mark on your end. The online world provides an enormous range of delights and discoveries, and our role is merely as yeoman to perhaps document a few of the highlights. But it is always a delight to hear from others who share our excitement over a developing online world.

Boardwatch started as a print publication. A few years ago, we participated in some projects to distribute periodical text data to electronic bulletin boards on a subscription basis, and still distribute Gannett New Media's USA TODAY DECISIONLINES to a number of systems around the world. A few of the systems carrying USA also wanted to carry Boardwatch online and the electronic edition was born. It would appear that it has indeed developed a following. The BBS pay \$75 quarterly for license to redisplay Boardwatch on their systems. We're delighted to count Channel 1, a growing success in the BBS arena, among them.

In answer to your question, we haven't discussed the Boardwatch Online Edition with the Boston Computer Society so far as I am aware. BCS is one of the oldest, and still most vibrantly active and useful PC user groups in the world and maintains an excellent BBS non-members can access at (617)332-5584. We would of course welcome any interest from that quarter.

Jack Rickard

RUMORS

Canada Remote Systems is clearly Canada's largest BBS system. Currently at 111 lines running a PCBoard BBS Software on a Novell Network. The company went bankrupt under Judd Newell last August due to some hardware sales misadventures. But the online service side of the house was actually pretty healthy at 80 lines. Neil Fleming stepped in and bought the service lock stock and barrel and kept Newell on as system operator. U.S. callers have had a bit of a problem accessing the service due to the hefty LD charges to dial internationally to Canada. In the works? U.S. access telephone lines bringing the system up to 140 lines total. With U.S. access, CRS could easily compete with the large U.S. systems such as EXEC-PC, Channel 1, Invention Factory, Odyssey, that are enjoying phenomenal growth this year.

How many M&Ms are sold each day in the United States - about 200 million according to *Harpers Magazine*. They also note that the average American automobile produces its own weight in carbon waste each year.

The Sears/IBM Prodigy Online Service continues its drift from the original flat-rate pricing structure. The newest entries are **BASEBALL MANAGER**, a fantasy baseball league at \$119.95 for the season, and **STRATEGIC INVESTOR**, a financial services premium service at an additional \$14.95 per month. The company's recent newsletter devoted several pages to reassuring subscribers that although they do download and execute software on YOUR PC, there is little risk of viral infection through this channel. The company now claims a million accounts on the system, which industry analysts note could put the total number of actual users into the "hundreds."

The Internet connection to commercial mail services has suffered some interruptions lately. CompuServe maintains a connection to Internet at Ohio State University. But after some key staffers left, the connection seems to be getting a bit shaky. In late April, the connection was disabled for several days and over 75,000 messages were backed up. Rumor has it that CompuServe is moving their Internet connection to UUNET. MCI Mail was not to be outdone. On May 8, their Internet connection jumped a track as well and thousands of messages were lost entirely. The striking thing about these connections are the tens of thousands of messages going through these ports daily.

Ameritech was the ONLY regional Bell operating company (RBOC) to pass entirely on the concept of an ONLINE GATEWAY service. Actually PacBell also bowed out after some early maneuvering but Ameritech stated flatly that there was no incentive to pay for an online gateway to services that could be dialed directly. Developments since then have proven them quite accurate with all but US West giving up on the faltering gateway concept.

But Ameritech is NOT disinterested in the online world. In fact, it now appears they may be the FIRST RBOC to wake up to the fact that the world isn't making any more teen-agers, and the online crowd comprises a growing group of people who heavily use second telephone lines, and are unusually familiar with other teleco service offerings. As a result, Ameritech has announced a goal to bring 10,000 new people in their region into active online use by the end of the year. Beginning in June, they will include a notice in 11.5 million telephone bills offering an information package on using online services. The package will include some general information on what's required to go online, along with a pocket full of one page advertisements from Prodigy, GEnie, and other online services.

The XyWrite III Plus word processor is virtually a secret. The product was never popular and is fading fast from view. Even so, it still remains the choice of many power users and a surprising percentage of journalists, particularly in the computer press, use this package - often to write glowing reviews of Microsoft Word and Word Perfect. It also has a large following among newspapers because of its. In their most recent newsletter, the company announced that IBM is acquiring the title. It will be revised to handle IBM's Displaywrite document format and offered to customers desiring something more powerful than Displaywrite.

TELEBITS

AUGUST BBS CONFERENCE SHAPING UP.

As previously reported, the International FidoNet is planning a convention for BBS operators and those interested in the BBS phenomenon at the Sheraton Lakewood Hotel and Conference Center in Lakewood Colorado this August 15-18. The conference is shaping up as the BBS event of the year. As of May 1, paid pre-registrations for the conference already exceeded the total *attendance* at Fidocon 90 or 89.

Part of the success of the event is simply due to increased interest in bulletin board systems and things online. But there is also a growing mood within the BBS community that they need a "gathering place" and the Denver area is an ideal spot with its central location, inexpensive hotel facilities (\$59 per room), and the scenic and recreational attractions of the area which make a combined vacation/BBS soiree desirable for many.

The Fidocon, traditionally an event for BBS operators who are part of the International FidoNet, seems to be broadening in scope as well. While the concept of linking BBS message conferences gained its greatest ground within FidoN-

et, dozens of other networks of BBS have sprung into existence to share message areas including Relaynet, UNI Net, AlterNet, etc. System operators from a wide array of these networks, and an increasingly diverse bevy of BBS software platforms are signing up - with some significant interest even from the Internet, largely a Unix world.

Tom Jennings, author of the original Fido BBS software that spawned FidoNet in 1984 will attend the event for the first time in several years along with Tim Pozar, author of UFGATE, a program to link BBS systems to Unix Internet nodes using the Unix to Unix Copy Program (UUCP) protocol. Roy Timberman, sysop of one of the largest Midwestern PCB-board systems, SOUND ADVICE serving the Kansas City area has already signed up. Andrew Milner, author of Remote Access BBS software is coming from Perth Australia for the event, and John Perry Barlow of the Electronic Frontier Foundation is also attending.

And several attendees of special note have joined the band wagon. The most surprising is Bernard Shaw - reporter of Cable News Network. His CNN broadcasts from Baghdad put Shaw in the limelight. As it so happens, one of his relatives suffers from Multiple Sclerosis - a degenerative disease of the nervous system and Shaw has joined the cause to fight MS. Convention organizers have arranged for an MS Fund-Raiser Pie Fight to be held on Friday evening and Shaw has offered to attend as one of the "targets". If you were disenchanted with CNN during the Gulf War, for \$25 you can plant a pie on Shaw's mug.

Another interesting note involves Peter Stewart and Michele Hamilton. Peter was co-developer of the Front Door mail program used by many FidoNet systems. He's since split with Front Door and is now offering an enhanced version of the product titled Intermail at \$99. The latest version includes SEA-

COCONET®

A Picture Is Worth A Thousand Users.

With the COCONET® HOST software from Coconut Computing, you can run your own graphics-based on-line information service or BBS.

- Have your users connect with an amazingly simple graphical popup-menu interface using the COCONET Access Program (PC-compatibles w/EGA/VGA/Herc); conventional ASCII text access also available. Access Programs for Mac® and NeXT® coming soon.
- With the CocoTalk™ API Library, you can create your own graphical online advertisements and external ("door") programs (such as user-friendly front-ends to databases, online catalogs, educational courseware, multi-user games, etc. Show maps, illustrations, scanned images, pie charts, bar graphs, multiple text fonts, and more.
- Licenses, starting at \$395, are available in 2, 4, 8, 16, 32, 64, and unlimited simultaneous user versions. The COCONET HOST requires SCO® UNIX® or XENIX® 386. CocoTalk available for \$395.
- See for yourself: call our Technical Support BBS at (619) 456-0815 (1200 or 2400 bps, 7/E/1), download the COCONET Access Program, and find out why COCONET is the BBS software of the future!

"It's quick, intuitive, and we think it is probably the best interface we've seen online anywhere."

Boardwatch
Magazine
12/89

COCONUT
computing, inc

7946 Ivanhoe Ave #303
La Jolla, CA 92037
(619)456-2002

COCONET is a registered trademark and
CocoTalk and Coconut are trademarks
of Coconut Computing, Inc.

Copyright © 1990, Coconut Computing, Inc.

link support and a number of bug fixes and was to be released during the first week in May.

Peter, originally from the United Kingdom, was living in south Miami two years ago and active in the Interuser Echomail conference. He met Michele Hamilton on that conference and the two have been an item since - forming InterZone Software together and operating the InterZone Cafe BBS 1:369/35 at (305)436-1085. As a result, they've decided to marry and have set a date of August 18, 1991. So they will be married at the FidoNet Convention on Sunday morning - to commemorate their first meeting via echomail.

Boardwatch will of course be at the convention and we've agreed, in concert with Phil Becker of eSoft, Inc., to host two sessions during the conference; PROMOTING YOUR ONLINE SERVICE, and MAKING YOUR BBS PROFITABLE. We're hoping to fill these two sessions with some specific re-

search we've spent some time compiling, in cooperation with several successful BBS systems.

There will also be a \$6000 super BBS system with computer, modems, software, the works given away at a drawing at the banquet on Saturday night along with some other door prizes. Kevin "DOC" McNeil and the FidoNet COOKING echomail conference will be producing food for the conference hospitality suite.

Conference memberships are available at \$104 until July 15, 1991 (\$169 at the door) and the Saturday night banquet is an additional \$25 for a total of \$129. Spouses /significant others can register for \$9.69 plus the \$25 banquet fee (\$34.69 total). A FREE child care facility is available during the conference and accompanied children under 14 are admitted free. All hotel arrangements must be made separately. You may call voice to obtain information or charge your conference fees to Master Card or Visa at (303)426-

1847 (FidoCon 91 Committee) or (303)699-6565 (eSoft, Inc.). FidoCon 91, P.O. Box 486, Louisville, CO 80027-0486; FidoNet e-mail to fidocon_91@z1.n1.f91.fidonet.org; TelePeople BBS - (303)426-1942 data;

Hotel Reservations - Single/Double \$59, Suites from \$95, Sheraton Lakewood Hotel, 360 Union Blvd., Lakewood, CO 80228; (303)987-2000.

AT&T PACKET/CELLULAR LAPTOP

AT&T has entered into a 60/40 partnership with Marubeni America, subsidiary of a Tokyo trading company to produce notebook computers. Their first offering, The Safari, includes 40 MB drive, 2 MB RAM, 1.44 MB floppy, mouse, built-in 2400 bps modem, MS-DOS 4.01 and Windows for \$5399. The unit is manufactured by Matsushita Electric Corp. of Franklin Park Illinois.

Most notably, the company has aimed the notebook at communications applications. A \$350 attachable paging device capable of receiving and storing up to 14 e-mail messages via Telefind Inc.'s paging network which can be transferred to the notebook computer. In this way, subscribers to AT&T Mail can send e-mail messages to notebook units in the field.

A second model planned will include a cellular version of the internal modem, 80 MB hard drive and 4 MB of RAM for \$6399. Additionally, the company plans to offer packet radio connections via Motorola's ARDIS packet data network. (800)247-1212

SUPRA CORP INTRODUCES 2400/V.42bis EXTERNAL MODEM

Supra Corporation is now shipping their new **SupraModem 2400 Plus** model. The unit features CCITT V.42bis error correction/compression standards as well as MNP-5, increasingly a standard configuration for new modems.

The Supra model is physically quite small, about the size of a double deck box of playing cards. A sturdy brushed aluminum case houses a small modem board using the Intel chip set and runs very cool and reliably. We first reviewed this modem in July of 1988 and still have one of the original Supra's in occasional service here at Boardwatch. This modem had been the favorite of system operators offering a large number of 2400 bps lines - largely due to its small size, reliable operation, and relatively low cost. It had fallen somewhat out of favor recently due to the lack of error correction. The new model adds the V.42bis correction/compression for significantly improved performance. The list price is \$239 and typically discounted to as low as \$159 for a sturdy, reliable 2400bps external modem. The company also offers models for Macintosh, Amiga, and an internal version for IBM PCs. Supra Corporation, 1133 Commer-

cial Way, Albany, OR 97321; (800)727-8772 voice; (503)926-9370 fax.

STEVE JOBS NEXT MACHINE STILL LIVING

No one has known quite what to make of Steve Jobs NeXT machine. The sleek black box offers a graphical version of Unix, if you can picture such a thing, in some sexy hardware. But it has been criticized for being a bit slow, a bit pricey, and a little bit out in left field from mainstream desktop units or workstations. But with significant financial backing from Jobs and Canon, the machine lives on. The company reported they shipped about 9000 units during the first quarter, and there is now a magazine devoted to the NeXT called *NeXTWORLD*. The bi-monthly, like the machine, is quite slick. It's published by Gordon Haight under the auspices of IDG at \$39.95 for six issues. *NeXTWORLD*, 501 Second Street, San Francisco, CA 94107; (800)775-6398.

The machine can speak, and there is a communications package available. MicroPhone II has gained some fame within the Macintosh community as a comm package and they now have a version for the NeXT machine. It makes good use of the graphic interface, but like the machine, it's a bit proud price wise at \$395. Software Ventures Corp., 2907 Claremont Ave., Suite 220, Berkeley, CA 94705; (415)644-3232.

We haven't heard yet of a BBS operating on, or for, the NeXT machine. We'd love to of course.

TBBS OFFERS DISCOUNT TO ORPHANED QUICKBBS USERS

As we reported last issue, BBS software author Adam Hudson recently joined eSoft, Inc., developer of The Bread Board System (TBBS) BBS software. TBBS has enjoyed increasing success as one of the BBS industry leaders with their high-end multi-line product featuring dBASE III+ compatible database functions. And recently, they seem to be pulling in quite a body of talent from across the in-



dustry. **Bob Hartman**, one of the authors of the BinkleyTerm mail software program for FidoNet, joined the company a little over a year ago and **Alan Applegate**, another BinkleyTerm veteran, joined the company last summer.

But Hudson was a particularly interesting acquisition. A bit of a computer Wunderkind, he served as FidoNet regional coordinator in New Mexico at age 11. We first encountered him at age 14 when he was hard at work on a BBS package he then called **TurboBBS** - written in Turbo Pascal. He released this package under the name **QuickBBS** and for awhile QuickBBS threatened to sweep the nation as thousands of system operators, attracted by the design flexibility, FidoNet compatibility, and responsiveness of the package, along with a very modest \$25 registration fee, began converting to Quick.

For a gentleman of 15, this was pretty heady stuff. But the continuous pressure of supporting a product via e-mail, telephone, and street mail, with requests from thousands of users around the world, didn't fit completely in a world increasingly dominated by girls and cars. Hudson sold the product to **Alan Fitsimmons** in Florida and "retired" from the world of BBS software support. His last release of QuickBBS was version 2.04.

Fitsimmons bought QuickBBS and hired two programmers, **Richard Creighton** and **Steve Gabrilowitz**, to work on an update. The three fell to battling over "who got the gold" and the lawyers were called in. The programmers had control over the source code and maintained that Fitsimmons hadn't paid them what they were owed for work performed and therefore QuickBBS was theirs by right of mechanics lien. Fitsimmons, who holds the copyright, claims a \$20,000 investment in the product and has now vowed to leave the world of BBSing. He doesn't view a long court battle for the product worthwhile since the

two programmers are not gentlemen of means and the product has languished.

And indeed it has. But the concept hasn't. In the meantime, two QuickBBS clones have arrived on the scene. **Andrew Milner**, of Perth Australia, wanted some improvements to QuickBBS and found the current owners unresponsive. So he wrote a BBS package that worked very much like QuickBBS and in fact, would use essentially the same message base and user database directly. QuickBBS operators began converting to **Remote Access** quite widely and Remote Access is currently enjoying phenomenal popularity. Additionally, a group in Sweden has also developed a QuickBBS titled **SuperBBS** that is doing well in Europe.

Hudson has been understandably distressed to see his brainchild abused. And last month, he accepted a full time position with eSoft to assist with product support and design for the pending Version 2.2 release of TBBS, due this July. He apparently spent the first couple of weeks on the job promoting the concept of bringing the somewhat abandoned QuickBBS people onboard with TBBS to eSoft President **Phil Becker**. QuickBBS was originally designed along the same design philosophy as TBBS and in fact, Hudson had licensed the "template menu" design concept from eSoft originally.

Apparently Becker caved in. And as a result, eSoft has made a rather impressive offer to QuickBBS system operators. Since QuickBBS was a shareware product with no printed manuals, and there is no reliable surviving list of registered QuickBBS users, the only verification they could settle on was the released archive files. As a result, anyone who can dig up a copy of the original archive files of QuickBBS Version 2.04, the last version released by Hudson, will be allowed to purchase the complete two-line package of TBBS Version 2.2, which lists for \$299.95, for a total cost of \$75. "This should give QuickBBS operators an affordable upgrade path to a true commercial

multi-line BBS package while allowing them to retain the basic design philosophy that allows them full control of what goes on the screen" claims Becker. eSoft, Inc., 15200 E. Girard Avenue, Suite 2550, Aurora, CO 80014; 303-699-6565 voice; 303-699-0153 support BBS.

WINDOWS SOFTWARE PROVIDES TCP/IP LINK TO UNIX SYSTEMS

Network Research of Oxnard California has introduced a software/hardware package to link IBM compatible PC computers to Unix systems using the Transmission Control Protocol/Internet Protocol (TCP/IP) protocol currently enjoying wildly growing popularity, not only among Unix sites, but increasingly on LAN and mainframe links as well.

Notably, the software runs under Microsoft Windows 3.0, using desktop icons to designate networking utilities and applications. The product is titled **FUSION FOR DOS**. The software alone is \$295, while the software with a network interface card included is \$495.

The product supports Sun's Network File System (NSF), and the Network Driver Interface Specification (NDIS) network adapter standard. It also provides connectivity to DEC VAX systems and provides VT-220 terminal emulation. It also includes support for the Xircom pocket adapter. Xircom developed this pocket adapter to allow laptop users to link to networks and seems to have captured this market niche.

FUSION FOR DOS seems to be a normal, character-based DOS application. But it comes with a program package that includes icons, PIF files, and information on how to get this network connection to run under Windows 3.0. Network Research, 2380 N. Rose Ave., Oxnard, CA 93030; (805)485-2700.

WILDCAT SYSOPS TO MEET IN CALIFORNIA

Mustang Software hosts a Wildcat! Sysop Conference in Bakersfield, California this July 26 through 28. The conference expects approximately 150 operators from around the country who'll attend to learn more about the use of Wildcat! BBS software, Desqview multitaskers, LANtastic and Novell local area networks, ANSI screen creation, FidoNet Echomail, Doors, offline readers, and various serial port hardware options. Most importantly, they will be looking for release of the new version 3.0 of the popular WILDCAT! BBS software.

Mustang has gained some acclaim over the past few years with their WILDCAT! software. The system is very easy to operate and install and has become the BBS package of choice for companies wishing to bridge internal local area networks with a reliable dial-up function. Workers on an internal LAN can logon to the system as well as callers from outside and the system provides excellent security for the LAN.

Mustang had previously held a very successful meet for Wildcat Sysops in Oklahoma. The conferences, while offering very specific workshops on how to get the most from your Wildcat! BBS, also allows system operators, many of whom have known each other for several years online, to meet face-to-face for the first time. These type of conferences also offer a superb means to evaluate the software before purchase. The conference fee is \$75 per person and hotel rates at the Sheraton Valley Inn are \$58 per night. Contact Mustang Software, Inc. P.O. Box 2264, Bakersfield, CA 93303; fax (805)395-0713.

BBS PAVILION PLANNED FOR FALL COMDEX

Each autumn, the Interface Group hosts the world's largest computer show with the fall COMDEX in Las Vegas. Last year, this show housed

about 1750 vendors and over 120,000 people made the stroll through some 20 miles of aisles to see the latest in PC wares.

This year's show promises to offer something a bit extra for the BBS crowd. Up to this point, Mustang Software has been about the only savage on the buffalo hunt at COMDEX as far as BBS software vendors displaying at the show and Jim Harrer and Rick Heming of Mustang have answered the question "What's a BBS" approximately 326,000 times at COMDEX - pretty much a lone voice in the wilderness.

Peter Young of the Interface Group has taken on the role of champion of the BBS world within that firm and even tried to organize a show specifically for the online world at one point. This year, he contacted Boardwatch and asked us to help sponsor a "BBS Pavilion" at the COMDEX show and we think it's a pregnant idea - particularly within the context of a larger idea - networking in general.

The Interface Group has set aside 600 booth units in the new MIRAGE HOTEL specifically as the "Networking Site" for this year's show. They plan on having Novell as the anchor of course but expect LANs and networking in general to be hot this year. The BBS Pavilion will be located within this contact at the Mirage.

The Mirage itself is something of an attraction. This hundred-million dollar glamour palace features a volcano in front that "erupts" every 15 minutes, and such attractions as a pair of white tigers, dolphins, etc.

At a very preliminary stage in the plans, all four of the major BBS software vendors including Mustang Software, eSoft, Clark Development, and Galacticomm, have committed to displaying their wares in the BBS Pavilion with Coconet and Searchlight Software expressing an interest. Additionally, Compucomm, developer of a \$169 9600 bps modem we reviewed in our April issue, plans on being

there as well as a number of the larger BBS operators. As BBS Pavilion sponsor, Boardwatch will of course be on hand to help spread the word.

The BBS world has offered a growing presence at COMDEX but in the past have not really been a force as far as actually displaying at the affair. In the past couple of years, several hundred BBS enthusiasts have found cause to gather and compare notes and its become something of a social event for BBS operators. This year would mark the "coming out party" for the BBS industry at COMDEX. It's certainly time the BBS/online services world gained some recognition within the industry.

Vendors desiring to join the BBS Pavilion may contact John Grecko, Interface Group, at (617)449-6600 - extension 5931 for additional information.

RESOURCE DIRECTORY MAKES COMPUTERS MORE PHYSICIAN-FRIENDLY

Computer-shy doctors have a new ally. PC Physician has announced the second edition of the *PC Physician Guide*, a medical computing resource directory on computer disk.

For health care professionals the guide is a red carpet to the information revolution. It lists available books, magazines, online services, professional organizations, and other resources supporting the use of computers in medicine. Separate indexes for Education, Nursing, Dental and Office-related health care computing resources have also been added to the second edition.

The information on disk is accessed using the included CRS Clinical Navigator program created by Clinical Reference Systems Inc. This program gives information on the disk a very effective "hypertext" type of interface. A little highlighted box may appear anywhere in text with a key to press for more information. Press-

ing such keys branches you off to other areas on the disk. The basic access is through an "index" listing hundreds of topics covering nursing, medical office procedures, medical databases, and directories. Development of the guide was sponsored by CIBA-GEIGY Pharmaceuticals of Summit, NJ, as an educational service for the medical community.

The PC Physician Medical Computing Resource Guide is available for \$15 postpaid (\$20 foreign) from PC Physician MCRG, 3300 Mitchell Lane, Suite 390, Boulder, CO 80301. Please specify format (IBM or Macintosh) and disk size (5 1/4" or 3 1/2" in DOS) when ordering.

PC Physician is a company formed in 1989 to design information services for health care professionals who use computers. Producers of products and services listed in the guide do not pay a fee to be included. Organizations, service providers, publishers and others who have information which should be considered for inclusion in the next edition of the guide should call PC Physician Guide editor Jerry McCarthy at (303)443-8085.

HAYES INTRODUCES EXTERNAL ISDN 1 SYSTEM ADAPTER

One of the promises that seem forever on the horizon is ISDN - Integrated Services Digital Network - the new model for a telephone system of the future. ISDN basically provides each home with two 64kbps digital channels and one 16 kbps data channel. Among other things, this allows subscribers to make two separate outgoing calls on the same line - which effectively gives them the equivalent of two lines using the current technology. All estimates of ISDN pricing seem to revolve around a 1.5 times current rates estimate. And the digital channels will deliver much higher quality sound as well.

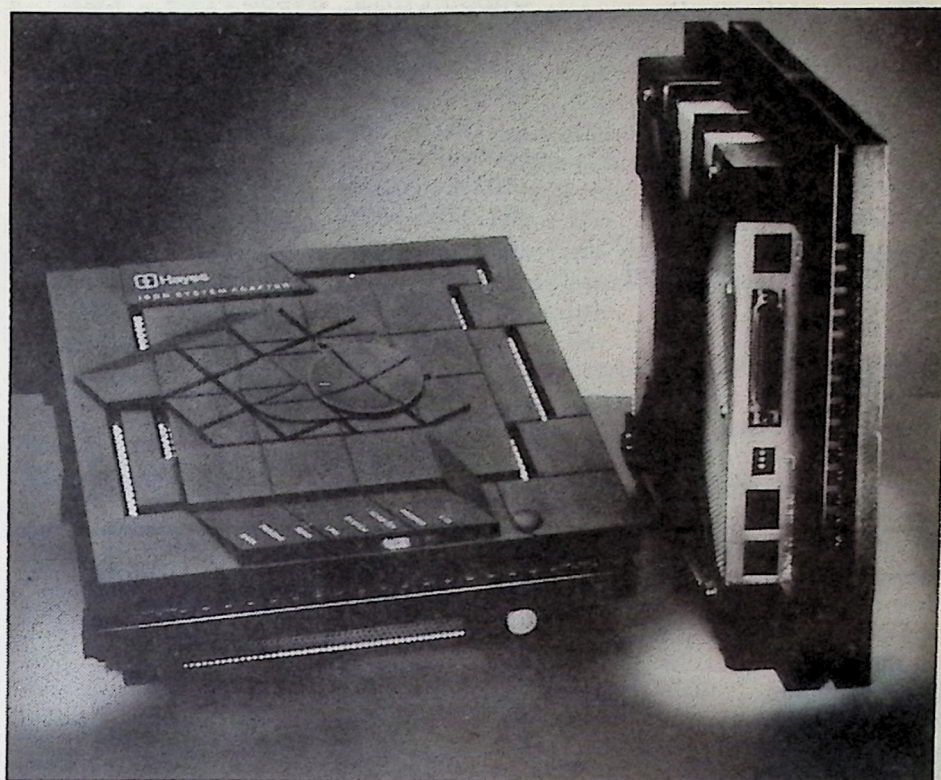
For the online world, ISDN goes considerably beyond that. Callers accustomed to 2400 bps connections, and even the serious online

aficionados used to data rates as high as 14,400 bps, would find 64kbps connections a much headier adventure. Transferring a 500 KB file at 2400 bps takes about 35 minutes. At 14,400 bps, this drops to slightly under six minutes. At 64kbps, the same file makes the trip in slightly over one minute and 18 seconds. Further, a 64kbps link offers none of the pauses and hesitations familiar to those who interact with BBS services at 2400 bps. The effect is more like operating your own computer - instantaneous screen updates.

Bellcorp recently announced ISDN-1, an update to the basic ISDN "standard" that had been somewhat ambiguous in some areas. The new standard, sometimes referred to as "National 1", has been adopted by all the major switch makers and Bell Atlantic,

NYNEX, and Southwestern Bell have all committed to tariffed ISDN service by December 1992.

One of the drawbacks of ISDN is that your normal telephone set won't work with a digital service. And normal modems don't do a very good job of taking advantage of the digital capabilities. Hayes Microcomputer Products has introduced an new external ISDN system adapter that goes a long way toward solving both problems. The **Hayes ISDN System Adapter** provides connections to an ISDN line via an RJ-45 modular connection and is compatible with the new ISDN-1 specification. It also provides connections for a normal analog telephone via RJ-11 modular plug and to your PC by way of an RS-232 serial port. The adapter supports asynchronous connections at a speed of 38.4kbps and synchronous links at 64kbps.



Hayes ISDN System Adapter

SYSOP MODEM DISCOUNT PROGRAMS 9600 BPS V.32 MODEMS

Vendor	Support BBS	Sysop Price	List
ATI	(416)756-4591	\$350	\$699
CompuCom SpeedCombo	(408)738-4990	\$169*	\$279*
GVC SM-96 V.32	(201)579-2380	\$379	\$695
Hayes Ultra 9600	(800)874-2937	\$599	\$1195
Intel 9600EX	(503)645-6275	\$399	\$799
Multi-Tech MT932EAB	(612)785-9875	\$449.50	\$899
Practical Peripherals PM9600SA	(818)706-2467	\$339	\$699
U.S. Robotics Dual Standard	(708)982-5092	\$499	\$1295
Ven-Tel	(408)922-0988	\$499	\$899

* - NOT V.32 - Proprietary

Hayes has adapted their AT command control language to include ISDN and the company has sought to set a standard for ISDN software termed ISDNBIOS (ISDN Basic Input/Output System). The company's communications software programs, Smartcom III and Smartcom Exec work with the ISDN system adapter and about ten other software developers have developed programs for the system, including some LAN bridging programs that allow you to connect two local area networks through the switched ISDN telephone network.

The Hayes ISDN system adapter works with both the AT&T and Northern Telecom ISDN central office switches used by various telephone companies to provide ISDN services.

Hayes is offering the ISDN System Adapter at \$1595 each, but with a bit of a twist. Until December 31, 1991, you can order TWO adapters at the price of one. Hayes Microcomputer Products, Inc., ISDN Technologies, 501 Second Street, Suite 300, San Francisco, CA 94107; (415)974-5544. Hayes also operates a product support BBS at (800)874-2937.

US ROBOTICS ACQUIRES TOUCHBASE SYSTEMS - CHANGES SYSOP DISCOUNT PROGRAM

USRobotics announced May 15 the acquisition of Touchbase Systems, Inc. of Culver City California. Touchbase has been the leading manufacturer of "pocket" modems for use primarily with laptop and portable computers. Thus far, they've had the only 9600 bps V.32 modem available in a "pocket" model.

The pocket modems first became popular with Migent's 1200 bps pocket modem a few years ago. About the size of a package of cigarettes, they were typically powered by a 9V battery and plugged directly into the serial port of a laptop computer. Today, they are often line powered devices growing ever smaller. Touchbase has produced some of the most capable, if expensive, of these modems and offers a full line including 2400 MNP, 2400 modem/fax, and most recently, the 9600 Worldport, a V.32 model.

USRobotics has been the darling of the BBS world with their HST series. Most recently, they've offered a V.32bis/V.32/HST model titled the Courier HST Dual Standard.

The company had previously offered no pocket modems at all and the Touchbase acquisition extends their line considerably. Touchbase will continue operation from Culver City and USR gains sales offices in New York and France as well.

After announcing a dramatic price cut for BBS systems operators March 1, the company has quietly added a little bomb to the BBS discount program early this month. The online order form on their support BBS at (708)982-5092 had just a few lines added to the text, but they mark profound and puzzling changes to program. "Note - we must be able to view all files and user log in order to validate board status. Please assign appropriate access level. Do you agree to this condition?(Y/N)"

Essentially, USR is requiring system operators, to qualify for the discount, to grant them sysop access privileges to all files on the system AND their caller userlog database. It is widely regarded as preposterously dangerous to give such access to ANYONE, even co-sysops on a BBS. Most operators do not give out any information on callers as a matter of policy in respect for caller privacy. That USR would demand access to the userlog database itself, which lists individual callers logon names AND passwords, is absurd beyond belief. Further, such technical access would allow USR, or anyone with the logon name and password within USR, the power of life and death over a BBS. We would be very surprised if this additional requirement didn't cause a storm of controversy within the BBS community, and we have to believe someone in USR worded this without the slightest idea what they were asking. We can't imagine what legitimate benefit such a requirement would bring USRobotics in any event. U.S. Robotics, Inc., 8100 North McCormick Blvd., Skokie, IL 60076; (800)982-5001.

PRODIGY - LORD OF THE FILES

OK, so baiting the Prodigy Online Service IS our favorite indoor sport here at Boardwatch. They're big. They're slow. They spent \$300 million developing a broken BBS without ever making an appearance in the online world to find out what one was supposed to look like, and the rest of their billion dollar war chest advertising the fact that they had designed the perfect interface for the dull, the dim-witted, the lame, and the halt. Throw in a dab of the online mortal sin, "commercial greed", and you have the perfect foil for all the fun things writers like to do. That Prodigy is jointly operated by IBM and Sears, two almost stereotypical "big" corporations, makes life easy for fat kids with keyboards.

But Prodigy has also done more than any other single entity to raise the national consciousness regarding online services. And the BBS world has profited most handsomely from that additional exposure. In fact, were it not for Prodigy's own myopic vision, and their never ending quest to isolate themselves from everyone else, when you stop and think about it, Prodigy has MORE in common with bulletin board systems than with other commercial services. BBS systems are overwhelmingly flat-rate in nature, and so is Prodigy. This flat-rate paradigm is clearly the one callers prefer and both Prodigy and the BBS world are doing better in attracting callers than any of the "clocked charge" services.

The latest imbroglio revolving around Prodigy is inappropriate. Perhaps it's a bit of the basement experimentalist hacker ethic I thought I'd pretty much purged, but I still like to see technical matters presented in a clear, crisp, accurate manner. And the flurry of criminally garbled news reports announcing PRODIGY PILFERS CALLER'S PRIVATE DATA has

placed me physically in the full power-retch mode and editorially in the preposterous position of defending my favorite "lumbering giant" target.

The Wall Street Journal, CNN, Infoworld, and even our local radio stations have picked up this story with a fervor normally reserved for Presidential assassination attempts. When the story made the local Y-108 Rock and Roll station, where the total news air time is measured in seconds per day, we knew Prodigy was in trouble.

PRODIGY CAN'T STEAL YOUR DATA BECAUSE IT'S ALL TEXT - AND EVERYONE KNOWS THEIR TECHNOLOGY ONLY ALLOWS THEM TO LOOK AT THE PICTURES!

I couldn't resist the foregoing. Seriously, the current flap is that Prodigy is scanning their callers hard drives, collecting private data, and piping them back to headquarters through the modem link for analysis at headquarters. GIVE ME A BREAK.

To fully explain my problem with this latest attack, we have to look at how disk drives work, at what Prodigy appears to be doing, and maybe speculate a bit as to what they MIGHT be doing.

Hard disk drives are basically plated magnetic media and data is "written" to the media magnetically much as sound is recorded on tape in a tape recorder. The surface area of the disk is vast compared to the area any one bit requires. A data file is of course made up of large numbers of "characters" or bytes of data usually representing numeric digits or alphabetical characters. Technically, the disk is mapped into circular "tracks" further subdivided into sectors which is further subdivided yet into blocks or "clusters" of data. Data is written to the disk more or less sequentially to fill up the disk.

Since we often access the same database/word processing document/spreadsheet, the file size can change from day to day. So if you

write a letter to Aunt May and store it on disk, then create a spreadsheet file, the spreadsheet file is nestled right up next to Aunt May on the disk surface. If you later edit Aunt May and add a few more pages, they will be stored on the clusters FOLLOWING the spreadsheet file. So you have part of Aunt May before the spreadsheet file, and part of her after the spreadsheet file. After a few weeks, Aunt May is spread all over the hard drive. So are your various spreadsheet files, your database files, your little league schedule.

After awhile, DOS has a difficult time finding Aunt May and your system starts to slow down. This is called file fragmentation and there are numerous utilities around to go through your hard disk and rearrange all the files on the disk surface so Aunt May is again all in one area, the little league is in one area, etc. This makes the system a bit more efficient. An entire market has grown up around defragmentation utilities such as Norton's Speed Disk, Gibson's Spinrite, and Optune.

To find any one file, if DOS had to scan the entire hard disk surface to find all the pieces, we would STILL be waiting for Lotus 1-2-3 Version 1.0 to be developed. It would take ten or fifteen minutes to find Aunt May and load her into your word processor. DOS actually accesses all files through a directory or index called the File Allocation Table or FAT. This is simply a lookup table listing all the files on the drive, and the physical cluster locations of the file (and a few other items inconsequential to this discussion).

To find a file, DOS looks up the filename in the FAT and immediately goes to the correct cluster containing the first block of data in the file - much as you would look up something in a book via the index or table of contents rather than just reading the entire book.

The FAT system is a bit rude actually, surviving as part of DOS since the earliest versions of the operat-

ing system. When you delete a file with the DOS DEL command, it simply erases the entry in the FAT and the clusters occupied by the Aunt May file are made available for new file storage. Aunt May is still out there on the disk surface somewhere. But the pointer to her is gone and so you'll never find her again. As you write new data to the drive, she'll eventually be written over. But immediately after deleting her, she's still out there. Peter Norton made a million dollars by figuring out how to re-insert an entry for deleted files into the FAT - providing the fumble-fingered with a sorely needed UNDELETE function with the original Norton Utilities package for IBM personal computers.

What has all this to do with Prodigy? Well, Prodigy users must run the strikingly inelegant Prodigy terminal software to access the service. When you install this software, it's first official act is to ask DOS to create a file titled STAGE.DAT. Initially, this file occupies up to 950KB of disk surface area, and contains very little. They do use a tiny bit of whatever is in memory to anchor the last block in the file. In reality, STAGE.DAT is actually a little mini-drive within your hard drive and Prodigy uses it as a disk drive - allocating storage and storing data out of the 950 KB area as it needs it. Prodigy's most current woes begin and end with this file.

When DOS/Prodigy creates STAGE.DAT, they don't actually write 950KB of data. So STAGE.DAT is mapped to occupy clusters that may contain data from previously deleted files. If you look at this file with Norton Utilities or another sector editor type of utility, you will be able to see scraps of data from those previously deleted files. By allocating this file, Prodigy's terminal program in a way resurrects this data. The program is not really aware its there, and without actually looking at the file with a hex editor, no one else is either. But some individuals, presenting themselves as technically competent, have declared that Prodigy is "stealing"

this data and piping it back to headquarters. It isn't so. Never was. And without a pointless but massive redesign of their entire system, it never can be so.

The Prodigy terminal software uses STAGE.DAT as their own little storage area. What does it store there? Largely graphics primitives and program patches. When you view a weather map of the United States on Prodigy, for example, the service doesn't transmit a bit image of the United States over the modem. Rather, it transmits a control code that causes the Prodigy terminal software to paint the image on the screen from graphics primitives contained in the terminal program. The service then transmits today's weather information which is overlaid on top of the map.

If Prodigy decides, for whatever reason, to lop off Florida, change the color of the map from crystal white to cobalt blue or change its size, they download a new graphics primitive of the map into STAGE.DAT. STAGE.DAT is the landing zone or download directory where the new primitive is stored. The bulk of the information flow is from their computer to yours of course. But, when you first logon to the service, there is an exchange between the terminal program and the host computer regarding what "versions" of primitives are available. If you don't have the latest, they are downloaded to your STAGE.DAT. If you don't logon for awhile, you may notice some delay while your software is "updated" in this fashion.

Unfortunately, Prodigy also downloads executable code - patches to their software into this area and runs them. While I think the "data snooping" story is juvenile, this download function makes me extremely uncomfortable. One disgruntled programmer at Prodigy could wreck about a million hard drives overnight by putting out a little program patch to eat File Allocation Tables.

But for some Prodigy users, a quick examination of the STAGE.DAT or CACHE.DAT files with Norton Utilities was a bit disconcerting. The STAGE.DAT file appears to contain scraps and bits of data files they recognize as source code, client data, etc. The conclusion they reached requires a miraculous leap of faith. Prodigy had "stolen" some of their private data. They were sucking data off the hard disk drives of millions of subscribers and at night, in a basement room under white lights, poring through zillions of megabytes of their users data, trying to determine why anyone would call them in the first place I suppose.

First, the Prodigy terminal program has no more access to unused blocks within STAGE.DAT than you do to unused blocks on your hard drive. Not that these clusters would make much sense if it did, but it doesn't. In allocating space within STAGE.DAT, it could wind up with access to a bit of data, because of the block technique used to allocate space. But it wouldn't have any cognizance of this fact and certainly couldn't use it for anything useful.

Without some dramatic changes to their software on both the terminal and central system ends, it is technically impossible for Prodigy to route these scraps back up the pipe to their computer. If it were possible, it would be daunting to extract those scraps from anything else and assemble them into anything so lengthy as a sentence. Even the concept of seeing data in a 950KB file is a little unintimidating to me. Anyone familiar with the speed of the Prodigy service is not going to be alarmed at the concept of them transferring 950KB of ANYTHING anywhere anytime soon.

The bottom line is that Prodigy does NOT scan your hard drive, access any of your files, or even have a method for retrieving this shadow data from deleted files accidentally included in STAGE.DAT. And if it did, nobody at Prodigy would have the faintest idea of what to do with or about it.

The story has gone wildly out of control and the Wall Street Journal carried a story by Michael Miller in their May 1 edition that would make the National Enquirer or Weekly World News blush. The story largely consisted of quotes from a series of tax accountants and computer consultants, each describing how very important their personal data is and how they couldn't possibly take a chance with it being pilfered by Prodigy. The story even made some grandiose and indeed comical technical errors in alluding to the possibility that BBS systems might be snatching data as well. "...Thousands of other home-grown bulletin boards let PC users send messages to each other's terminals. In theory, all these services could also exploit their telephone links to snoop inside a user's files..." Since BBS callers use a variety of software of third-party design to dial into BBS, this is patently ridiculous.

In the story, Prodigy spokesman Brian Ek, who has in the past repeatedly demonstrated his uncanny ability to further complicate Prodigy's woes, again struck a blow for the critics. *"We couldn't get to that information without a lot of work, and we haven't any interest in getting there"*.

What Ek said was of course quite true. Since you do run their software on your system, and they run their software on their system, and the two systems are linked by modem, given the resources of IBM, about a 100 man-years of effort, and ANOTHER billion dollars, they could redesign the entire system to get the data off your disks. Not the way the system works now, but sure, it could be done. And yes given that level of required effort, they don't have any interest in "getting there."

Those in the online community, of course, took Ek's arrogance/ignorance as something else entirely. Do you mean our data isn't worth acquiring? Or is it that we should trust in the good wishes, charity, and disinterest of IBM to NOT peek at data they could access?

But technically, a quick sanity check is in order here. You ARE running THEIR software on YOUR machine. THEY are running THEIR software on THEIR machine. The two machines are linked by modem. If they EVER had the slightest inkling they might want files or data off your hard disk, they don't need STAGE.DAT to do it. IF the Prodigy terminal and Prodigy host software had been designed with that purpose, it would be extremely simple to read directories on any drive on your system, upload entire files from your hard drive, just as YOU upload files to a BBS. And such a process would leave not the slightest track or sign it had been done. You would not be able to tell it had ever happened if you used an electron microscope and a stadium full of psychics. The level of effort to design such a function into their software, would be a tiny fraction of the level of effort to perform this ridiculous "data snippet" grab everyone is howling about.

The problem with the attack on Prodigy runs much deeper than technical misunderstandings, a bit of bad press, and arrogant spokesmen. The real problem is that Prodigy doesn't have any friends.

There has to be several thousand people in the online world that have read these reports and laughed out loud. And tens of thousands of others that after 20 minutes examining the Prodigy software and STAGE.DAT joined them. But Prodigy will very likely be materially damaged by a story that has virtually no merit, and they don't have ally number one in the online world to stand up and say boo on their behalf. Why is this?

First, they introduced an online service without the slightest effort to get out into the fray, mix it up a bit, and find out what they were getting into or what features/foibles were important in running an online service.

Then they snubbed the existing online world quite badly. Boardwatch readers first read

about Prodigy in 1987 and it was still called TRINTEX at that time. There was much interest in the service and at introduction, some constructive criticism. Prodigy immediately responded with the moronic theme that "our service isn't for the existing online crowd, it's for people who have never been online before - we intend to attract the mass market".

This is just too cute for words. It's somewhat akin to showing a driver a three wheeled car that only has one gear - reverse, and a horn that blares incessantly - pausing only WHILE you press the horn ring. When the driver offers a few suggestions for improvement, you simply brush him off by telling him that you weren't trying to sell it to HIM. You only want to sell it to people who've never seen or driven a car - and after walking all their lives they'll LOVE it.

The company was actually surprised to learn their callers actually used the broken e-mail service (We can turn the seat around backwards and reverse will be just like going forward). So they slapped an e-mail surcharge on all messages beyond 30 per month to their "all you pay is \$9.95 per month" flat-rate service (I know, we'll only put enough gas in so they can drive 30 miles per month).

When an e-mail protest regarding the new pricing erupted on their service, they couldn't just let it die a natural death, as most online imbroglios do. They jumped in immediately, shut down some BBS forums, threw about a dozen "troublemakers" off the service, and released a flurry of "statements" noting that it was in fact their ball, their bat, and if anyone didn't want to play "nicely" they were off the team. Their advertising continued to imply flat-rate service and the Texas attorney general's office started action against them at the behest of some of the unhappy subscribers. A further suit was filed in Los Angeles with more on the way.

So there certainly isn't any sentiment among those accomplished online to "defend Prodigy". Those outside the online world don't have a clue but they do know where there's smoke there must be fire and they don't want their data pilfered. And Prodigy's own spokesmen still have it up their skirt that since they're IBM they can call the tune and the users will just have to live with it. Eventually, Prodigy has to learn that to play in the online world, you have to play by a subtle but important set of rules, and you don't get to make them just because you own the hardware.

There is one further very interesting aspect of this particular situation with STAGE.DAT and CACHE.DAT. It has to do with both paranoia and the increasing complexity of desktop computers. To prove to our own satisfaction that Prodigy's system worked more or less the way we thought it worked, and they claimed it worked, we performed some experiments. By intentionally writing a single character across an entire disk surface BEFORE installing Prodigy on that disk, no data previously deleted could be "recovered" into STAGE.DAT and any data actively "picked up" by the program would leave rather obvious tracks in STAGE.DAT.

Incredibly, we found data from three or four OTHER hard drives - programs, directories, bits of files. Needless to say, this caused a LOT of excitement, and speculation here. If Prodigy's terminal software DID suck in active data from OTHER drives, their story, and ours, was blown sky high.

As it turns out, the WIPEDISK program we used doesn't actually work with all disk drives and all versions of DOS (notably 4.01). Further, it doesn't return any error message that it failed. It churns along for the appropriate amount of time and terminates normally. It gives every indication that it wiped the disk surface clean. But if you go back in and examine the disk surface again, it hasn't wiped anything. Secondly, a disk cache system has the capacity to flush an

enormous amount of information into STAGE.DAT if you don't power down the system before doing the Prodigy install.

When we eliminated these two little indiscretions, Prodigy was quite innocent. The bottom line here is when testing such things, you really do have to eliminate ALL the possibilities. Secondly, our own reaction of paranoia and speculation was somewhat spectacular.

So, particularly if you do use disk caches, an amazing variety of data from your hard drive CAN wind up in STAGE.DAT. The important point is, that you already know more about this than Prodigy's terminal program, or Prodigy, possibly could. We're convinced that Prodigy is the victim of a system anomaly that is not only beyond their control, but varies from system to system. The software development that would be required for them to transmit this data back up the pipe is not realistically feasible, and to put it in a form anyone could reliably comprehend at that end is inconceivable. There is simply no "risk" whatsoever.

But the fear of an unknown and unseen danger runs deep. Take nuclear radiation. You could sit in a room with enough of it to kill you by morning and you can't see, hear, smell, or touch it. And it causes an almost unreasoning fear. Enough fear that we can sell a million little radon detector cans by mail order to those fearful of "basement radiation" they can't see. Enough fear that we can cancel entirely the safest means known to create electricity - for safety reasons. And the accusations leveled against Prodigy imply that someone is doing something on your private system, and you can't see or hear or smell it. And if you want to get hysterically theoretical, *they could be, couldn't they?*

Whatever the technical merits of this situation, many are destined to hear the raving speculations and apparently few have the discipline or technical know-how to dispassionately examine the issue.

And the bottom line is that any time you connect your computer to another in the night, a certain amount of trust is implicit. Prodigy is just going to take a very nasty public relations "hit" for some very unworthy reasons. The most disturbing of these is that they have done very poorly at becoming "one of us" in the online world. This is eerily reminiscent of the theme of the classic novel *Lord of the Flies*. If left to re-create our own society online, and we are, will we too, not fully comprehending the how or why of society's existing rules, simply butcher all who differ? I would prefer not.

THE WELL

Our cover girl this month is Cliff Figallo, Executive Director of the Whole Earth 'Lectronic Link (The WELL) in Sausalito California.

The WELL is a particularly interesting service in that there just aren't many like it. Not quite a BBS, not quite a large commercial service, and not quite like anything you've seen.

Technically, the WELL serves a total of 5000 users (about 2500 active) on a Sequent 8-processor mini-computer under a UNIX-like operating system using PICOSPAN conferencing software. Eight 400 MB Fujitsu drive units provide storage 3.2 GB of storage - most of which is devoted to storing message conferences, although some public domain software is available for download. Thirty USRobotics 2400 bps modems are tied to direct lines on a hunt group at (415)332-7190 as well as five relatively new Telebit 9600 bps modems at (415)332-8410. Additionally, two 9600 bps X.25 packet trunks from the CompuServe Packet Network provide 12 sessions each for up to 24 simultaneous packet sessions. This allows callers to dial a local CompuServe network and logon to the WELL. The Picospan software supports up to 64 users but the most they've had online to date is 56.

The WELL currently has e-mail and Usenet News conference ties to the Internet. You can reach any well user via Internet as **anyone@well.sf.ca.us**. But according to Figallo, they are shooting for a July 1991 connection directly to the Internet through the Bay Area Regional Research Network (BARRNet) at Stanford University. Potentially, this could allow WELL users Internet access to logon to research libraries and other BBS on Internet. As importantly, those with Internet access could logon to the WELL without the usual long distance charges. There are some complex legal and billing questions that are still up in the air, and the \$30,000 investment for Internet access is not insubstantial. But apparently, they've already made application to BARRNet and it looks like it will happen.

The WELL operates under the auspices of Stuart Brand's Whole Earth Review magazine in the back rooms of a sprawling, ramshackle building in Sausalito. With a staff of seven, and the relatively expensive mini-computer technology used on the system, rumor has it that the WELL first became profitable this past February. The atmosphere on the site is quite relaxed and informal, and Figallo explains that adding formality to the physical office would add little, and the pressures of moderating one issue or another on the WELL's online world are intense enough without the coat and tie.

For the user, the service is quite different from either commercial online services or electronic bulletin boards. Most online services strive to make the user interface easy to understand and use. This almost always results in a "menu" type of interface where the caller selects functions from a list presented on screen. For veteran users, this type of interface tends to be a bit slow.

On the WELL, the interface is command driven. Callers enter commands at the command line, analogous to the DOS prompt, to perform functions. As a result, the

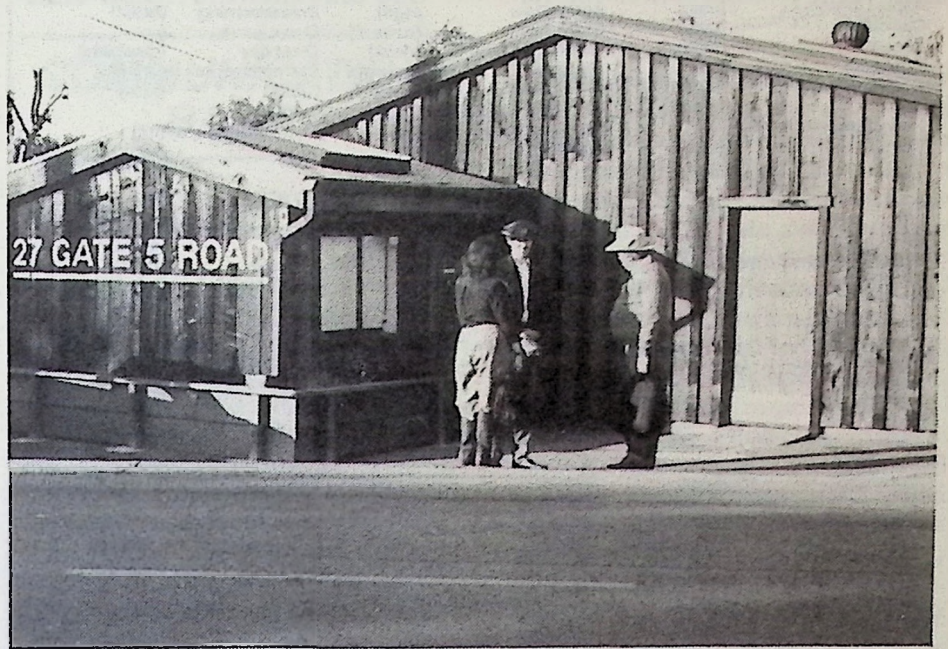
learning curve to efficiently find your way around the service is pretty steep. On the other hand, once mastered, it becomes very efficient and powerful - and quick for those accustomed to it. WELL fans seem to regard it as a rite of initiation rather than a barrier and take delight in discovering new commands they can use. Learning to use the system apparently gives some sense of accomplishment to those mastering it. The learning curve is somewhat ameliorated by an excellent 129-page user manual.

And the interface is powerful. The basis of the WELL is message conferencing. "Areas" or conferences contain "topics" and each topic then contains messages. This is quite different from BBS message conferences in some key ways. First, you can't really respond to individual messages in any meaningful way. You normally read the entire topic and then respond to it or pass. This seems to dramatically decrease the head-to-head ego conflicts common on bulletin board systems. A further difference is that the WELL maintains topics and messages for years, rather than days. You might easily find

yourself mentally enmeshed in a conversation that took place a year ago.

And the command structure allows you to do things you just can't do on most online services. It is very easy to move an entire topic to a file in your "file area" with a simple command: **s 632 pas cellular.txt**, for example, might move an entire conversation on cellular telephones from topic 632 into a file titled **cellular.txt** for you to download later using the **!SZ** command to use ZMODEM. If you see a message from someone you don't know much about, it's also easy to use the **WHO** or **FINGER** commands to get more information on that person.

The service does maintain a bit of a public domain library. But basically the chat, shareware, and color ANSI functions you might expect from a large system are largely missing. The WELL's primary draw is the nature of the people on it and the message conferences they participate in. Almost anyone who's a player in the PC computer industry has been on their at one time or another and many journalists from Harper's



WELL MESSAGE CONFERENCES

BUSINESS - EDUCATION

Apple Library UG	(alug)	Agriculture	(agn)	Brainstorming	(brain)
Classifieds	(cla)	Consultants	(consult)	Consumers	(cons)
Design	(design)	Desktop Publishing	(desk)	Disability	(disability)
Education	(ed)	Energy	(energy91)	Entrepreneurs	(entre)
Homeowners	(home)	Investments	(invest)	Kids91	(kids)
Legal	(legal)	One Person Bus	(one)		
Periodical/newsletter	(per)	Telecomm Law	(tcl)	The Future	(fut)
Translators	(trans)	Travel	(tra)	Work	(work)

SOCIAL - POLITICAL - HUMANITIES

Gulf Crisis	(gulf)	Aging	(gray)	AIDS	(aids)
Amnesty International	(amnesty)	Archives	(arc)	Berkeley	(berk)
Buddhist	(wonderland)	East Coast	(east)	Emot. Health*	(private)
Environment	(env)	Christian	(cross)	Couples	(couples)
Current Events	(curr)	Dreams	(dream)	Drugs	(dru)
Firearms	(firearms)	First Amendment	(first)		
Fringes of Reason	(fringes)	Gay	(gay)	Gay (Private)*	(gaypriv)
Geography	(geo)	German	(german)	Hawaii	(aloha)
Health	(heal)	History	(hist)	Interview	(inter)
Italian	(ital)	Jewish	(jew)	Liberty	(liberty)
Mind	(mind)	Miscellaneous	(misc)	Men WELL*	(mow)
Nonprofits	(non)	North Bay	(north)	Northwest	(nw)
Parenting	(par)	Peace	(pea)	Peninsula	(pen)
Poetry	(poetry)	Philosophy	(phi)	Politics	(pol)
Psychology	(psy)	Psychotherapy	(therapy)	San Francisco	(sanfran)
Scam	(scam)	Sexuality	(sex)	Singles	(singles)
Southern	(south)	Spirituality	(spirit)	Transportation	(transport)
True Confessions	(tru)	Unclear	(unclear)	Writer's Wkshp*	(www)
Whole Earth	(we)	Women on WELL*	(wow)	Words	(words)

ARTS - RECREATION - ENTERTAINMENT

ArtCom Electronic Net	(acen)	Audio-Videophilia	(aud)	Bicycles	(bike)
Bay Area Tonight*	(bat)	Boating	(wet)	Books	(books)
CD's	(cd)	Comics	(comics)	Cooking	(cook)
Flying	(flying)	Fun	(fun)	Games	(games)
Gardening	(gard)	Kids	(kids)	Nightowls*	(owl)
Jokes	(jokes)	MIDI	(midi)	Movies	(movies)
Motorcycling	(ride)	Music	(mus)	On Stage	(onstage)
Pets	(pets)	Radio	(rad)	Restaurant	(rest)
Science Fiction	(sf)	Sports	(spo)	Star Trek	(trek)
Television	(tv)	Theater	(theater)	Weird	(weird)
Zines/Factsheet Five	(f5)				

GRATEFUL DEAD

Grateful Dead	(gd)	Deadplan*	(dp)	Deadlit	(deadlit)
Feedback	(feedback)	GD Hour	(gdh)	Tapes	(tapes)
Tickets	(tix)	Tours	(tours)		

COMPUTERS

AI/Forth	(ai)	Amiga	(amiga)	Apple	(app)
Atari	(ata)	Computer Books	(cbook)	Art & Graphics	(gra)
Hacking	(hack)	HyperCard	(hype)	IBM PC	(ibm)
LANs	(lan)	Laptop	(lap)	Macintosh	(mac)
Mactech	(mactech)	Microlimes	(microx)	NeXt	(next)
OS/2	(os2)	Printers	(print)	Programmer's Net	(net)
Siggraph	(siggraph)	Software Design	(sdc)	Software/Prog	(software)
Software Support	(ssc)	Unix	(unix)	Word Processing	(word)

TECHNICAL - COMMUNICATIONS

Bioinfo	(bioinfo)	Info	(boing)	Media	(media)
Comp.Freedom&Priv	(cfp)	Elect Frontier Found	(eff)	Photography	(pho)
Netweaver	(netweaver)	Packet Radio	(packet)	Tech Writers	(tec)
Radio	(rad)	Science	(science)	Video	(vid)
Telecommunications	(tele)	Usenet	(usenet)		
Virtual Reality	(vr)				

THE WELL ITSELF

Deeper	(deeper)	Entry	(ent)	General	(gentech)
Help	(help)	Hosts	(hosts)	Policy	(policy)
System News	(news)	Test	(test)		

magazine, The New York Times, etc. frequent the place on a regular basis.

There's also a certain isolation on the WELL. Many participants don't seem to display much awareness of the rest of the online world - beyond perhaps CompuServe. This is part of the Balkanization or "world within worlds" phenomenon we've been noting across the online world. Most people online define the nature of the online world by the sometimes tiny segment of it they've experienced. Prodigy users believe they are online. Unix people in Internet largely count Internet as the online world. BBS operators pretty much define it in light of shareware, ANSI screens, and network mail. Gradually, many of these worlds are coming into collision and some of the cultural aspects of each group are unavoidably due to change.

An interesting example is Jim Rutt's SWEEPER program. Increasingly, online service users are finding ways to interact offline using utility programs. CompuServe has TAPCIS, Genie offers ALADIN, and thousands of BBS callers are using programs such as QMail Deluxe to access services, download a "mailbag", and read and respond to the messages offline.

Jim Rutt has written an engaging program titled SWEEPER for the WELL. It is available for download in the directory /uh/05/jimrutt/ as the file SW080.EXE. But now that he's created it, Mr. Rutt doesn't seem to know what to do with it - the usual shareware conventions just don't seem to appeal to him. So he releases a new version every month or so with a date timer that causes the software to "expire", i.e. cease functioning, within a few weeks. The SW080 version expired May 15. The software is free at this point, but Mr. Rutt acknowledges he may want to do something with it someday so he just keeps releasing this ever dying software program.

While this might seem comical to conventional shareware authors and BBS callers, lacking any point of reference, the denizens of his SWEEPER conference applaud it all around as marvelous. SWEEPER, of course, allows you to download entire conferences or topics, along with your private e-mail, and read and respond offline. The resulting messages are then delivered at your next logon. In this way, you can do most of your reading offline and enjoy dramatic savings in "connect time". The program is actually rather well done.

The conferences on the WELL are among the most informative available. Time and time again, we've encountered online issues regarding ISDN, Internet, e-mail links to other countries, etc. that we needed information on and found someone discussing it in TELECOM - usually quite knowledgeably. Mitch Kapor and John Perry Barlow host an Electronic Frontier Foundation (EFF) conference that has been most active.

Perhaps most bizarre is the series of conferences for the Grateful Dead Rock 'n Roll group. The Grateful Dead may be a little obscure at this point on the pop music charts, but the group has been active for over 20 years now and is probably one of the most profitable music enterprises on the planet. They pack concerts with "Dead Heads" many of whom have been following the group for most of its existence and they operate a mail order operation to deliver records, tapes, t-shirts, etc. that would be the envy of Drew Kaplan. They have eight conferences on the WELL.

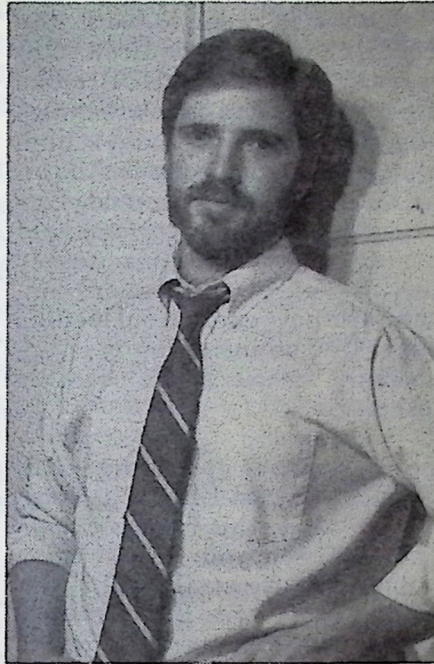
WELL access is, like everything else, a bit different. The basic price for membership is \$10 per month and \$2 per hour. Access to the 9600 bps lines incurs an additional surcharge of \$4 and access through CompuServe Packet Network requires an additional \$5 hourly - day or night. They currently offer the first five hours of connect time free so you can get a leg up on the learning curve. Overall, the service is different, perhaps campy,

but certainly interesting. THE WELL, 27 Gate Five Road, Sausalito, California, 94965; (415)332-7190 data; (415)332-4335 voice; (415)332-1669 fax.

COMMUNICATIONS BASICS

ANSI Terminal Emulation

by Alan D. Applegate



People who are new to the online community (and some less aware old timers as well) often don't understand or misunderstand a feature of many BBS called ANSI (usually pronounced ant-see). One of the most common problems new BBS callers encounter is dialing into a BBS and see a series of garbage characters on the screen after the fashion [1;5;36;41m mixed in with normal menu items. These characters are actually ANSI terminal control codes - and the fix is easy. You simply select ANSI as the "terminal emulation" in your Communications program. The "chinese characters" disappear and you'll then see your favorite BBS in a different light - with color, attractive (or gaudy) menus, and even animation. Virtually ALL communications software programs today provide ANSI termi-

nal emulation and for new callers, it is important to learn to use ANSI terminal emulation when dialing bulletin board systems. In this month's column, I'll explain ANSI - what it is, and how it's used.

As it's used in the BBS world, the term ANSI is really a misnomer. ANSI is an acronym for American National Standards Institute, a prominent standards setting organization. ANSI sets standards for everything from handicapped accessibility in architecture to engineering and drafting symbols. ANSI, as we know it in BBS circles, is actually ANSI Standard X3.64, which defines a common set of control codes for data terminals. Among other things, the standard includes a set of codes, often called ANSI escape sequences, that allow cursor movement, attribute (color) control, and screen clearing functions. This is what we commonly refer to as "ANSI" in the BBS community.

The standard also includes definitions for outbound codes - escape sequences sent from your computer to the remote host. These codes allow you to send codes for function keys and cursor (arrow) keys. Although full ANSI terminal emulations also include these key codes, in the BBS world, it's the inbound codes moving FROM the BBS host to your PC to create the screen display that are most used and most important.

Despite ANSI being a standard, each manufacturer such as DEC, IBM, and so forth has actually implemented the "standard" in various ways. This results in several subsets of ANSI in use, which can cause some odd behavior in some circumstances as I'll describe later.

Having ANSI installed and working will usually allow you to enjoy more visually attractive online presentations on systems that implement it. Many BBS system operators spend great amounts of time creating ANSI menus and screens for their systems, many of which include sophisticated "animated" ANSI sequences. Although some host software uses ANSI in a

more serious manner, such as eSoft's TDBS using ANSI emulation for dBASE-style data input screens, by far the most common use is simply pretty (and often gaudy) menus.

ANSI is one of several terminal emulations that you're likely to find supported by your communications software. Terminal emulation, as the name suggests, causes your software to emulate a particular brand or type of data terminal. The popular Procomm communications software package, for example, supports a wide range of emulations for terminals from DEC, Televideo, Wyse, Data General, and more, including ANSI.

ANSI is one of the most common terminal emulations you'll find. Other very common emulations include the DEC terminals VT-52, VT-100 and VT-102. These emulations are in fact very similar and largely compatible with ANSI, but do have differences. If your software doesn't support ANSI emulation but does support VT-100 or VT-102, you can use them instead in most cases.

Implementing ANSI is really a two-step process - setting the communications software (your end of the connection) and setting the host (the BBS or online service you're calling).

Most communications software has a key combination or setup screen specifically for terminal emulations. You can usually set the "default" terminal emulation in your installing/configuration for the software. Often a key combination such as ALT-S (Procomm) or ALT-O (TeliX) allows you to change this setup. Additionally, most communications programs allow you to specify a different terminal emulation for EACH entry in the dialing directory. You most likely will need to consult your software's help screens or manual for directions on enabling ANSI emulation in your software. You may wish to make this the default setting in your comm software, as non-ANSI hosts will still work fine if ANSI is enabled on your end. The most

common difficulty, again, is the host transmitting ANSI control codes, while the caller's software is set to TTY (Teletype) or no emulation. You're generally safe turning on and leaving on ANSI emulation.

Previously, it was important to make sure you had the ANSI.SYS device driver loaded by including **DEVICE=ANSI.SYS** in your **CONFIG.SYS** file. Most communications programs today internally support terminal emulations, and do not depend on resident drivers such as DOS' own ANSI.SYS. In order to work, the ANSI.SYS driver requires that program output use DOS calls. DOS screen output calls are inherently slow, and with today's high data speeds, things can bog down in a hurry with that method. Programs that use high-performance output (which includes nearly every modern PC application) cannot and do not benefit from loading ANSI.SYS, so installing it is unnecessary to use ANSI codes in most cases.

The next step is specifying ANSI output at the host BBS. With most BBS software, this means changing an option in your user setup to enable ANSI. Access the utility section on your favorite BBS, and look for prompts to change your terminal preferences. It's there where you'll most likely find the choice to enable ANSI or COLOR GRAPHICS. Not all hosts or BBS programs support ANSI, and of those that do, not all individual systems will choose to implement it on their system screens. If you can't find any way to turn it on, ask the system operator whether his or her system supports ANSI, and if so, how to turn it on.

Some hosts, such as Galacticom's Major BBS, automatically sense ANSI at logon. They do this by issuing an ANSI "request cursor position" command (part of the ANSI spec) and waiting for a response. If the comm program returns the cursor position, then the BBS assumes the callers communication program supports ANSI, and enables color graphics for the duration of the call. Although this

is generally a handy feature, it's not always reliable. Programs such as the old PC-Talk and FidoNet mailers such as SEAdog and BinkleyTerm when used in terminal mode DO depend on the DOS ANSI.SYS driver to be loaded. Since the programs only route outgoing keystrokes through the driver (and not incoming terminal control codes), auto-sensing won't work because the ANSI response is never routed back to the host. In these cases, ANSI will not be enabled, even though the software is technically capable of it. There may, however, be a manual override available if this is the case.

As I mentioned earlier, despite ANSI being a standard, there are several variants in use. While setting your terminal emulation to ANSI will eliminate the "Chinese garbage characters", there are subtle differences in emulations that can cause some oddities on screen.

This last problem is the most common you'll encounter, and it centers around the handling of clear screen codes. Some programs, such as Procomm, will clear the screen to the currently set background color when an ANSI clear screen code is sent. Others, such as TeliX, clear the screen to black in all cases. On many systems, this latter behavior will cause you to see a black background in most areas of the screen, while areas with text have colored letters on a different background color. The effect is a screen that looks like little bits of colored type cut and pasted on a black screen. Although non-fatal, it's certainly visually unattractive. There is little you can do about it outside of changing terminal programs.

Once you have ANSI set as your default terminal emulation, you shouldn't have further problems. But it is interesting to note how ANSI actually works and some explanation of the mechanics of ANSI is probably in order.

ANSI operates with a series of so-called escape codes. These codes get their name because they begin

GW Associates

The Communications and Information Systems Specialists

PRESENTS

The new User Manager for TDBS systems, the full registration and member tracking system that is a true member data base. It has keyword search, on-line user resumes to help users get to know each other, a notepad to let you keep notes on every user, etc. It will present SysOp defined text messages on pending expiration of membership and make the necessary access changes on expiration. Allows users to join as members or renew their membership using credit cards on-line.

The Message Manager for TDBS systems. Some of the highlights of this package are: Support for up to 10,000 message areas; SysOp configurable full screen editor; SysOp configurable reply quoting; the capability of editing messages after they are saved; users can change several read options at any time and save them to disk to make the changes permanent; users can subscribe to up to 60 areas and see all the new messages in each area when they enter the message menu; complex search capability on any combination of FROM, TO or SUBJECT fields; message text can be searched for strings; FidoNet format message import and export utilities are available. This program is priced at \$179.00.

The extremely popular game of StarQuest. This is the first multi-player, multi-user space game to run under TBBS/TDBS. You can create a universe of a size that is best for your system and its users and your users create and capture settlements and become active wheeler/dealers across your universe. Their settlements can be attacked and captured whether the user being attacked is on-line or off, and as the users gain in strength and worth the computer controlled pirates and the tax assessor will be there to lend a helping hand. This on-line multi user game has already proven itself to be popular with the users and it's not only a lot of enjoyment for them but it can quickly pay for

itself on systems charging for access. This program is priced at \$149.95.

The powerful and productive On-Line Sales Manager. This on-line catalog sales program is written by Jeff Johnson, another pioneer in TDBS software, and it easily shows the power and capabilities of TBBS and TDBS. The Sales Manager will display a catalog of items for sale under categories you specify, each item can have a full descriptive text file attached to it and the user can place an order at any time and continue to browse through the catalog. When done the user selects to order and is presented with each item and given the opportunity to indicate how many are to be shipped. Developed as a modular package this software will handle everything from a low level order entry system to a fully featured point-of-sale package and do all the things you would expect of a full sales package. Please come and work with it on-line. Prices start at \$395.00.

We have many application and entertainment software packages on-line, like the all new Classified Ad program, Super Star Trek, Lexi and new software under development.

There's a lot available for the TBBS/TDBS SysOp, as well as for anyone interested in an Information System (BBS). If you want to learn more about TBBS/TDBS just call our system and look through Our Demonstration and Sales Area and register as a customer. GW Associates offers full support to all SysOps and we have several excellent programmers available to help with your applications and customization. Please call our system at (508) 429-1784 (N,8,1) and keep up with our new releases or call us on our voice line at (508) 429-6227 if we can help you in any way. Installing and remotely supporting commercial systems is our ONLY business, and we're very good at it!

TBBS/TDBS/TIMS SUPPORT * TBBS/TDBS/TIMS SUPPORT * TBBS/TDBS/TIMS SUPPORT * TBBS/TDBS/TIMS SUPPORT * TBBS/TDBS/TIMS SUPPORT

P.O. Box 6606, Holliston, MA 01746 (508) 429-6227

with the escape character, followed by a left square bracket ([character). This escape left bracket is followed by a varying quantity of numbers, semi-colons, and a single letter at the end. Depending on the purpose of the code, the numbers and letters sent have different meaning.

For example, to clear the screen from the current cursor position to the end of the current line, a code like this would be sent:

```
esc[0K
```

(NOTE: "esc" as used in these examples is actually a single ASCII escape character - decimal 27, hex 1B. Most text editors display it as an arrowhead)

To set the color attributes to bright cyan blinking characters on a red background, the following code would be sent:

```
esc[1;5;36;41m
```

How do BBS operators create the colorful, and sometimes animated screens you see online? Most use an ANSI screen editor. These editors allow you to design screens with a mouse and cursor keys, set colors, turn characters to bold, and even create animation sequences on screen. When the screen is completed, the program saves the screen to a file - complete with all necessary ANSI control codes to recreate it. The BBS operator then simply replaces his text file for that particular menu with the ANSI file. When you call the system, the ANSI file is transmitted to your computer and the screen is recreated on your system. Probably the most popular of these ANSI editors is a shareware program titled **THE DRAW**, currently in version 4.00, written by Ian E. Davis of TheSoft Programming Services, 1929 Whitecliff Court, Walnut Creek, CA 94596. The program is widely available for download as **TDRAW400.ZIP**.

The one drawback to ANSI is that as many as twelve or more characters could be sent over the phone line just to make a single color

attribute change - without any actual visible display characters being sent. For this reason, ANSI always adds some amount of overhead to the transmission time of screens and menus - sometimes very significant overhead. This is all "behind the scenes" where you won't see it occurring, but the net effect is that ANSI screens appear to display more slowly than comparable non-ANSI screens. For this reason, it's best on slow or expensive data links to leave ANSI disabled, and settle for a generic display, as you'll likely save at least a small amount of time and money.

That's about it for ANSI, at least as it commonly applies in the BBS environment. Next month, tune in for more Communications Basics.

AMERICA ONLINE DEBUTS FOR PC

by Alan D. Applegate

I'm probably a marketing person's nightmare. One of the first things I do when I receive magazines is go through it cover to cover and tear out those little post-paid cards and slick, thick ads that make the magazine fall open at a strategic place. I was "stripping" a new issue of PC Magazine a couple of months back when I came across one post-paid card that caught my attention - "Test a Major New Online Service Free" the card read. Being no fool, I of course faithfully filled in my name and address and dropped the card in the mail, just as the marketing person who designed it wanted me to.

The card and the ad that went with it made no mention whatsoever as to the name of the service, but I could tell from the city and state on the card that it was most likely some new concoction from Quantum Computer Services, the Vienna, Virginia "dabble at this and that" online service company best known for PC-Link and America

Online, the latter being the only major Mac-exclusive online service around.

It was only a few weeks later that my suspicions were confirmed, when I received a small package containing a sign on kit for America Online (or AOL, as its commonly called) and its new IBM PC oriented incarnation. The literature echoed the original ad, by claiming that I am part of some "Telecommunications Research Project" evaluating the service. Under the cheap marketing veneer, however, it's fairly clear that the "test" is actually a gimmick to get as many people as possible on board with the new service, but be that as it may, I fell for it and I'm surprisingly impressed.

Quantum's services, like Prodigy, use proprietary communications programs to access the service, rather than offer the generic, non-graphical interface of services like CompuServe and GENIE. Quantum's previous attempt at attracting PC owners, PC-Link, was a joint venture with Tandy/Radio Shack, and uses Tandy's Deskmate graphical interface. When I first looked at PC-Link over a year ago, it was a terribly buggy, clumsy interface. Its mouse handling, one of its main benefits, was problematic with an inadvertent click here or there bringing the system to a halt and forcing a reboot of the machine and relogin to the service. For me, the service was no more than a fascinating look at a good idea with poor implementation.

AOL also uses a graphical interface, but this time, it's based around PC/GEOS, the highly rated Windows-like graphical interface from GeoWorks (currently available only as part of GeoWorks Ensemble, a multi-purpose integrated software package). The AOL kit comes complete with a runtime version of PC/GEOS, and enough of it to make a difference (complete setup of PC/GEOS including printer and video drivers, for example, is included). Although the PC/GEOS environment itself comes with three different interface designs (OSF/Motif, OpenL-

ook and SAA/CUA) only OSF/Motif is included with the AOL kit. Although subtly different from Windows, it's close enough that anyone who's used Windows or other graphical environments will feel right at home.

Like Windows, PC/GEOS has a very impressive, colorful design, with shadowed buttons, slider bars and so on. Personally, I find the PC/GEOS interface more enjoyable as far as artistic design is concerned. And unlike Windows, PC/GEOS (and hence AOL) is capable of running on ANY PC-based computer platform, including low-end XT-class machines with just 512k of RAM. The interface itself looks good on any graphics screen, monochrome or color, low-res or high-res. On my own system (a 386 with a Paradise VGA-Plus card and multi-synchronous monitor) the graphics looked stunning in 800x600 mode using the included Paradise video driver.

Unlike Prodigy's remote software, AOL's PC/GEOS base allows the system to take full advantage of virtually any hardware instead of forcing you into a "lowest common denominator" limited resolution display. Text screens, for example, use a small but readable font that allows wide text lines, even inside a small less-than-full-screen window. You have an option of increasing the font size for greater readability should you require it.

Installing the software itself was somewhat time-consuming, but only because the installation program was busy copying dozens of files from the two, 3.5" release disks. (The software is also available on 5.25" disks.) Although installation itself went smoothly, running the software for the first time caused an odd, unreadable error message to be displayed. Booting from an unembellished system floppy (no TSRs, no LAN, etc.) allowed the software to load and run flawlessly.

When you run the software the first time, it will automatically dial an 800 number to retrieve proper local access numbers for the ser-

vice. It was during this step that I had to tinker for about 15 minutes with my modem settings until all the "extras" (error correction, data compression, multi-stage result codes, etc.) were disabled. The software makes this easy by allowing a very long string of modem "AT" commands to be entered on its setup screen.

Since the software uses Tymnet and Telenet (now SprintNet) for access, I was able to skip the 800 number step and directly enter the local access numbers (which I already use for other services). I was impressed with the AOL software's trust in the end user for this and the modem setup - a refreshing change from Prodigy's insistence on shielding the end-user from these "harsh realities." Although the software will largely "self install" for less knowledgeable users, I'm glad that more experienced users like myself could do the setup on their own.

Once the modem string was correctly entered to disable bells and whistles, and once I entered the local access numbers, it was a simple matter to do the initial sign on. My initial explorations were twice hit with long delays that ended in "Host Disconnected" error messages from reasons that are entirely unclear. I reconfigured the software to dial via Telenet first (instead of Tymnet, which defaults to being first on the list) and I've not encountered the error since.

The sign on itself is as simple as clicking the "Sign On" button with your mouse. Once the connection is established, you'll need to enter your password, which you select. (First time calls are a bit more involved, and you'll need to enter some information from the Registration Certificate from the AOL kit.)

A welcome screen is displayed next. This screen will alert you if there is mail waiting, and it also shows some system highlights you can access directly at that point if you wish. The next most logical step is to click on the "Browse the Service" button, which will pop-

up a window on the screen that allows you to vector into nearly every area of the system with a mouse click or two. There are also several options available from a menu bar on the top of the screen, which you can select with a mouse. For example, selecting "Mail" from the menu bar allows you to read or enter electronic mail.

The browse window contains eight colorful icons that you can select with a mouse click. They are:




- News & Finance
- People Connection
- Lifestyles & Interests
- Games & Entertainment
- Learning & Reference
- Travel & Shopping
- Computing & Software
- What's New & Online Support.




Selecting one of these icons will in most cases bring up lists on the browse window itself. These lists are really just hierarchical menus that you can navigate with simple mouse double-clicks.




People Connection is AOL's chat area. For chat aficionados, this has got to be the finest chat facility available - loaded with features that make chat both fun and functional. The chat areas are arranged in rooms. You can select a room from the list, or create your own if the names of existing rooms don't match your fancy.

Once you're in a room, incoming messages are displayed in a scrollable window, while you enter your messages in a small, one line field. You can pull down a menu that allows you to see more information about the users in the room with you, to send a private message to one of the users, or to highlight a user's comments. The highlighting is particularly nifty - it will list the users in the room at that time, and allow you to have all of one user's text displayed in any one of eight different screen colors. One person's text could be pink, while another user's is blue, and so on. (By default, all messages from all users is black.)

THE NASHVILLE EXCHANGE

-  **12 Phone Lines**
-  **1.8 Gigabytes**
-  **One of the largest GIF collections in the USA**

-  **EASY/SIMPLE Menus**
-  **Files for IBM, MAC, Amiga ATARI, Unix & Apple**
-  **100+ Fidonet Echomail Conferences**

-  **FREE time for new calls**
-  **On-line Publications:**
USA Today DecisionLine, BIX BBS News, INFOMAT
-  **Multi-Player Games**

MODEM:

615-383-0727

Office (voice): 615-269-5221
A Service of The Nashville Exchange, Inc.

The Computing & Software section contains (among other things) the AOL file download libraries. This is where the interface of AOL really shines. You can do a system-wide search for particular files of interest to you, based on one or more keywords. You can limit the search to particular interest areas, or you can do a global search. The searches are quick to execute, and matching files and brief descriptions are listed in batches of 20 at a time in a scrollable window. You can highlight any file in the list, and either download the file immediately or see a complete information screen prior to the download.

You can also perform searches in the various interest areas themselves. Interest areas include such topics as applications, DOS, education, games, graphics and so on. When you perform a search in an interest area, you can again designate specific sub-interests or search the entire area. For example, under games, I could search for Windows based games if I wished. There are so many different approaches to finding files, you'll be well served if not overwhelmed.

The downloads are all done automatically with a built-in protocol, while the screen displays progress in bytes and percentage as it goes. Due mostly to its packet switch network data link, downloads are somewhat slow. A welcome change would be background transfers interlaced with other online activities to maximize use of the line, but such a feature is wishful thinking at this point...your machine is tied up while the transfers progress at their less than frenetic pace.

One of the strong points of the service is printing and text handling. Any text displays are printable without the limitations familiar to Prodigy members. Simply select "File" from the menu bar, then "Print..." from the pull-down menu, and you can print in your choice of high quality or draft output. The text is printed as-is, without any annoying printed headers. This facility allows you to quickly

and easily print messages, excerpts from the online encyclopedia, news stories, etc.

On any text display you can also use your mouse to highlight text on the screen and copy it to a buffer. This came in handy when I requested a listing of contacts. From the list, I wanted to print just one entry. I highlighted that text in the window, selected "Edit" from the menu bar, then "Copy" from the pull-down menu. To print this piece, I opened a local text window (select "File" then "New") then pasted the text into that window, which I then printed. As involved as it sounds, it actually took just seconds to mark and copy the text, open the window, paste the text, then print - all using my mouse. This extreme flexibility is inherent to the interface - these services are provided by the PC/GEOS environment in which AOL runs.

AOL also features logging, which seems unusual for such an interface. You can enable conference or session logging independently. The session log simply makes a text file on disk of all text window displays. As a result, most of the navigational and control displays are filtered from the log output, leaving you with actual "meat" you would want or need from a log file.

AOL's electronic mail capability is powerful by virtue of the interface that drives all of the service. Entering messages is easy and straightforward - one might even call it fun. What it has in ease of use, however, it lacks in true capability...there are no Internet or other links to outside services. The only "external" mail capabilities are routing to conventional mail via the postal service and the sending of messages to any fax machine, both of which incur additional cost.

I was surprised to learn that the PC version of AOL is connected to the older, well established Mac version. People Connection (the chat areas) for example, allows both Mac and PC users to chat with one another. It appears to be linked in with Quantum's PC-Link service

as well. Electronic mail messages can also be freely sent back and forth. The connections are invisible - the user isn't aware that there is any separation at all.

America Online is an impressive, well designed, well implemented online service. It appears to have an extensive user base already, but then the Mac side has been established for some time now. The interface is polished and powerful. It gives new users ease of use, and more experienced users the power they need. It remains to be seen whether AOL can reach the proportions of CompuServe or Prodigy, but it deserves more than a passing look. Quantum Computer Services, Inc., 8619 Westwood Center Drive, Vienna, VA 22182. 703-893-6288 voice.

CYBERSPACE AND THE LEGAL MATRIX: LAWS OR CONFUSION?

by Lance Rose, Esq.
Cyberspace, the "digital world", is emerging as a global arena of social, commercial and political relations. By "Cyberspace", I mean the sum total of all electronic messaging and information systems, including BBS's, commercial data services, research data networks, electronic publishing, networks and network nodes, e-mail systems, electronic data interchange systems, and electronic funds transfer systems.

Many like to view life in the electronic networks as a "new frontier", and in certain ways that remains true. Nonetheless, people remain people, even behind the high tech shimmer. Not surprisingly, a vast matrix of laws and regulations has trailed people right into cyberspace.

Most of these laws are still under construction for the new electronic environment. Nobody is quite sure of exactly how they actually apply

to electronic network situations. Nonetheless, the major subjects of legal concern can now be mapped out fairly well, which we will do in this section of the article. In the second section, we will look at some of the ways in which the old laws have trouble fitting together in cyberspace, and suggest general directions for improvement.

LAWS ON PARADE

Privacy laws.

These include the federal Electronic Communications Privacy Act ("ECPA"), originally enacted in response to Watergate, and which now prohibits many electronic variations on wiretapping by both government and private parties. There are also many other federal and state privacy laws and, of course, Constitutional protections against unreasonable search and seizure.

1st Amendment.

The Constitutional rights to freedom of speech and freedom of the press apply fully to electronic messaging operations of all kinds.

Criminal laws.

There are two major kinds of criminal laws. First, the "substantive" laws that define and outlaw certain activities. These include computer-specific laws, like the Computer Fraud and Abuse Act and Counterfeit Access Device Act on the federal level, and many computer crime laws on the state level. Many criminal laws not specific to "computer crime" can also apply in a network context, including laws against stealing credit card codes, laws against obscenity, wire fraud laws, RICO, drug laws, gambling laws, etc.

The other major set of legal rules, "procedural" rules, puts limits on law enforcement activities. These are found both in statutes, and in rulings of the Supreme Court and other high courts on the permissible conduct of government agents. Such rules include the ECPA, which prohibits wiretapping without a proper warrant; and federal and state rules and laws spelling

out warrant requirements, arrest requirements, and evidence seizure and retention requirements.

Copyrights.

Much of the material found in on-line systems and in networks is copyrightable, including text files, image files, audio files, and software.

Moral Rights.

Closely related to copyrights, they include the rights of paternity (choosing to have your name associated or not associated with your "work") and integrity (the right not to have your "work" altered or mutilated). These rights are brand new in U.S. law (they originated in Europe), and their shape in electronic networks will not be settled for quite a while.

Trademarks.

Anything used as a "brand name" in a network context can be a trademark. This includes all BBS names, and names for on-line services of all kinds. Materials other than names might also be protected under trademark law as "trade dress": distinctive sign-on screen displays for BBS's, the recurring visual motifs used throughout videotext services, etc.

Right of Publicity.

Similar to trademarks, it gives people the right to stop others from using their name to make money. Someone with a famous on-line name or handle has a property right in that name.

Confidential Information.

Information that is held in secrecy by the owner, transferred only under non-disclosure agreements, and preferably handled only in encrypted form, can be owned as a trade secret or other confidential property. This type of legal protection is used as a means of asserting ownership in confidential databases, from mailing lists to industrial research.

Contracts. Contracts account for as much of the regulation of network operations as all of the other laws put together.

The contract between an on-line service user and the service provider is the basic source of rights between them. You can use contracts to create new rights, and to alter or surrender your existing rights under state and federal laws.

For example, if a bulletin board system operator "censors" a user by removing public posting, that user will have a hard time showing his freedom of speech was violated. Private system operators are not subject to the First Amendment (which is focused on government, not private, action). However, the user may have rights to prevent censorship under his direct contract with the BBS or system operators.

You can use contracts to create entire on-line legal regimes. For example, banks use contracts to create private electronic funds transfer networks, with sets of rules that apply only within those networks. These rules specify on a global level which activities are permitted and which are not, the terms of access to nearby systems and (sometimes) to remote systems, and how to resolve problems between network members.

Beyond the basic contract between system and user, there are many other contracts made on-line. These include the services you find in a CompuServe, GENie or Prodigy, such as stock quote services, airline reservation services, trademark search services, and on-line stores. They also include user-to-user contracts formed through e-mail. In fact, there is a billion-dollar "industry" referred to as "EDI" (for Electronic Data Interchange), in which companies exchange purchase orders for goods and services directly via computers and computer networks.

Peoples' Rights Not to be Injured.

People have the right not to be injured when they venture into cyberspace. These rights include the right not to be libeled or defamed by others on-line, rights against having your on-line mate-

rials stolen or damaged, rights against having your computer damaged by intentionally harmful files that you have downloaded (such as files containing computer "viruses"), and so on.

There is no question these rights exist and can be enforced against other users who cause such injuries. Currently, it is uncertain whether system operators who oversee the systems can also be held responsible for such user injuries.

Financial Laws.

These include laws like Regulations E & Z of the Federal Reserve Board, which are consumer protection laws that apply to credit cards, cash cards, and all other forms of electronic banking.

Securities Laws.

The federal and state securities laws apply to various kinds of on-line investment related activities, such as trading in securities and other investment vehicles, investment advisory services, market information services and investment management services.

Education Laws.

Some organizations are starting to offer on-line degree programs. State education laws and regulations come into play on all aspects of such services.

The list goes on, but we have to end it somewhere. As it stands, this list should give the reader a good idea of just how regulated cyberspace already is.

LAWS OR CONFUSION?

The legal picture in cyberspace is very confused, for several reasons. First, the sheer number of laws in cyberspace, in itself, can create a great deal of confusion. Second, there can be several different kinds of laws relating to a single activity, with each law pointing to a different result. Third, conflicts can arise in networks between different laws on the same subject. These include conflicts between federal and state laws, as in the areas of criminal laws and the

right to privacy; conflicts between the laws of two or more states, which will inevitably arise for networks whose user base crosses state lines; and even conflicts between laws from the same governmental authority where two or more different laws overlap. The last is very common, especially in laws relating to networks and computer law.

Some examples of the interactions between conflicting laws are considered below, from the viewpoint of an on-line system operator.

System operators Liability for "Criminal" Activities.

Many different activities can create criminal liabilities for service providers, including:

- distributing viruses and other dangerous program code;
- publishing "obscene" materials;
- trafficking in stolen credit card numbers and other unauthorized access data;
- trafficking in pirated software;
- acting as an accomplice, accessory or conspirator in these and other activities.

The acts comprising these different violations are separately defined in statutes and court cases on both the state and federal levels.

For prosecutors and law enforcers, this is a vast array of options for pursuing wrongdoers. For service providers, it's a roulette wheel of risk.

Faced with such a huge diversity of criminal possibilities, few service providers will carefully analyze the exact laws that may apply, nor the latest case law developments for each type of criminal activity. Who has the time? For system operators who just want to "play it safe", there is a strong incentive to do something much simpler: Figure out ways to restrict user conduct on their systems that will minimize their risk under *any* criminal law.

The system operator that chooses this highly restrictive route may not allow any e-mail, for fear that he might be liable for the activities of some secret drug ring, kiddie porn ring or stolen credit card code ring. The system operator may ban all sexually suggestive materials, for fear that the extreme anti-obscenity laws of some user's home town might apply to his system. The system operator may not permit transfer of program files through his system, except for files he personally checks out, for fear that he could be accused of assisting in distributing viruses, Trojans or pirated software; and so on.

In this way, the most restrictive criminal laws that might apply to a given on-line service (which could emanate, for instance, from one very conservative state within the system's service area) could end up restricting the activities of system operators all over the nation, if they happen to have a significant user base in that state. This results in less freedom for everyone in the network environment.

Federal vs. State Rights of Privacy.

Few words have been spoken in the press about network privacy laws in each of the fifty states (as opposed to federal laws). However, what the privacy protection of the federal Electronic Communications Privacy Act ("ECPA") does not give you, state laws may.

This was the theory of the recent Epson e-mail case. An ex-employee claimed that Epson acted illegally in requiring her to monitor e-mail conversations of other employees. She did not sue under the ECPA, but under the California Penal Code section prohibiting employee surveillance of employee conversations.

The trial judge denied her claim. In his view, the California law only applied to interceptions of oral telephone discussions, and not to visual communication on video display monitors. Essentially, he held that the California law had not caught up to modern technology -

making this law apply to e-mail communications was a job for the state legislature, not local judges.

Beyond acknowledging that the California law was archaic and not applicable to e-mail, we should understand that the Epson case takes place in a special legal context - the workplace. E-mail user rights against workplace surveillance are undeniably important, but in our legal and political system they always must be "balanced" (ie., weakened) against the right of the employer to run his shop his own way. Employers' rights may end up weighing more heavily against workers' rights for company e-mail systems than for voice telephone conversations, at least for employers who use intra-company e-mail systems as an essential backbone of their business. Fortunately, this particular skewing factor does not apply to *public* communications systems.

I believe that many more attempts to establish e-mail privacy under state laws are possible, and will be made in the future. This is good news for privacy advocates, a growing and increasingly vocal group these days.

It is mixed news, however, for operators of BBS's and other on-line services. Most on-line service providers operate on an interstate basis - all it takes to gain this status is a few calls from other states every now and then. If state privacy laws apply to on-line systems, then every BBS operator will be subject to the privacy laws of every state in which one or more of his users are located! This can lead to confusion, and inability to set reasonable or predictable system privacy standards.

It can also lead to the effect described above in the discussion of criminal liability. On-line systems might be set up "defensively", to cope with the most restrictive privacy laws that might apply to them. This could result in declarations of *absolutely no privacy* on some systems, and highly secure

setups on others, depending on the individual system operator's inclinations.

Pressure on Privacy Rights Created by Risks to Service Providers.

There are two main kinds of legal risks faced by a system operator. First, the risk that the system operator himself will be found criminally guilty or civilly liable for being involved in illegal activities on his system, leading to fines, jail, money damages, confiscation of system, criminal record, etc.

Second, the risk of having his system confiscated, not because he did anything wrong, but because someone else did something suspicious on his system. As discussed above, a lot of criminal activity can take place on a system when the system operator isn't looking. In addition, certain non-criminal activities on the system could lead to system confiscation, such copy-right or trade secret infringement.

This second kind of risk is very real. It is exactly what happened to Steve Jackson Games last year. Law enforcement agents seized Steve's computer (which ran a BBS), not because they thought he did anything wrong, but because they were tracking an allegedly evil computer hacker group called the "Legion of Doom". Apparently, they thought the group "met" and conspired on his BBS. A year later, much of the dust has cleared, and the Electronic Frontier Foundation is funding a lawsuit against the federal agents who seized the system. Unfortunately, even if he wins the case Steve can't get back the business he lost. To this day, he still has not regained all of his possessions that were seized by the authorities.

For now, system operators do not have a great deal of control over government or legal interference with their systems. You can be a solid citizen and report every crime you suspect may be happening using your system. Yet the chance remains that tonight, the feds will

be knocking on *your* door looking for an "evil hacker group" hiding in your BBS.

This Keystone Kops style of "law enforcement" can turn system operators into surrogate law enforcement agents. System operators who fear random system confiscation will be tempted to monitor private activities on their systems, intruding on the privacy of their users. Such intrusion can take different forms. Some system operators may declare that there will be no private discussions, so they can review and inspect everything. More hauntingly, system operators may indulge in surreptitious sampling of private e-mail, just to make sure no one's doing anything that will make the cops come in and haul away their BBS computer systems (By the way, I personally don't advocate either of these things).

This situation can be viewed as a way for law enforcement agents to do an end run around the ECPA's bar on government interception of electronic messages. What the agents can't intercept directly, they might get through fearful system operators. Even if you don't go for such conspiracy theories, the random risk of system confiscation puts great pressure on the privacy rights of on-line system users.

Contracts Versus Other Rights.

Most, perhaps all, of the rights between system operators and system users can be modified by the basic service contract between them. For instance, the federal ECPA gives on-line service users certain privacy rights. It conspicuously falls short, however, by not protecting users from privacy intrusions by the system operator himself.

Through contract, the system operator and the user can in effect override the ECPA exception, and agree that the system operator will not read private e-mail. Some system operators may go the opposite direction, and impose a contractual rule that users should not expect any privacy in their e-mail.

Welcome Neighbor...

*A Little More
BBS Than
Most People
Are Used To*

- ⊕ 64 Lines
- ⊕ All numbers autobaud 3/12/2400 (MNP Level 5)
- ⊕ No surcharge 9600 access (MNP Level 9)
- ⊕ Message areas linked to National FIDonet
- ⊕ Everything you expect from a great BBS:
Public, Private and Intimate Chat
Real-time multiplayer games
File libraries like the PC-SIG for unlimited downloading
Information like the Encyclopedia and US History databases
- ⊕ Just \$2.50 an hour includes the call and PDN (no surcharges)
- ⊕ Save even more with Monthly or Annual memberships!

... To PDN's Nationwide Neighborhood

ALABAMA		PENSACOLA	904/476-7215	BALTIMORE	301/281-9222	NASHUA	603/882-4588	PENNSYLVANIA		SAN MARCOS	512/392-3401
AUBURN	205/821-5351	PORT CHARLOTTE	813/743-4602	CUMBERLAND	301/722-4005	PORTSMOUTH	603/433-8686	BETHLEHEM	215/974-9400	TEMPLE	817/770-0540
BRANKINGHAM	205/942-9301	SARASOTA	813/365-7311	MICHIGAN		NEW JERSEY		DANVILLE	717/275-0151	TYLER	903/592-6544
HUNTSVILLE	205/837-4030	TALLAHASSEE	904/386-3828	ANN ARBOR	313/930-0456	ATLANTIC CITY	609/645-6866	ERIE	814/454-4803	WACO	817/776-4933
MOBILE	205/660-0822	TAMPA	813/286-2504	BATTLE CREEK	616/963-6881	CHEERY HILL	609/273-1411	HARRISBURG	717/540-0770	UTAH	
MONTGOMERY	205/269-0085	WEST PALM BEACH	407/833-0382	DETROIT	313/964-0610	EDISON	201/417-9445	KING OF PRUSSIA	215/692-2796	LOGAN	801/753-7865
TUSCALOOSA	205/752-6968	GEORGIA		FUNT	313/695-6610	MORRISTOWN	201/366-1560	LANCASTER	717/293-0882	PROVO	801/375-6003
ALASKA		ALBANY	912/439-1918	GRAND RAPIDS	616/361-9363	PHILIPSBURG	201/454-3459	PHILADELPHIA	215/854-8121	SALT LAKE CITY	801/484-5011
ANCHORAGE	907/274-0260	ATHENS	404/548-6395	JACKSON	517/782-0523	SHREWSBURY	201/774-1642	PITTSBURGH	412/681-7506	VERMONT	
ARKANSAS		ATLANTA	404/396-1167	KALAMAZOO	616/385-2032	TRENTON	609/882-8835	SCRANTON	717/969-9760	BURLINGTON	802/658-2410
FAYETTEVILLE	501/442-4654	AUGUSTA	404/724-9844	LANSING	517/487-0833	WEST ORANGE	201/669-8011	STATE COLLEGE	814/234-2820	RUTLAND	802/775-5999
FORT SMITH	501/785-5544	COLUMBUS	404/324-6882	MIDLAND	517/832-2511	NEW MEXICO		WILKESBARRE	717/823-1640	WHITE RIVER	603/643-6517
LITTLE ROCK	501/372-0748	MACON	912/781-6132	MT PLEASANT	517/772-9447	ALBUQUERQUE	505/255-0108	WILLIAMSPORT	717/322-4390	VIRGINIA	
ARIZONA		SAVANNAH	912/966-5775	MUSKEGON	616/739-2348	LAS CRUCES	505/525-3311	YORK	717/843-5141	ALEXANDRIA	703/845-0405
GLENDALE	602/937-0596	HAWAII		SOUTHFIELD	313/350-9582	SANTA FE	505/662-5546	RHODE ISLAND		BLACKSBURG	703/552-3110
PHOENIX	602/893-6670	HONOLULU	808/839-7234	TRAVERSE CITY	616/929-9873	NEVADA		KINGSTON	401/294-2415	CHARLOTTESVILLE	804/977-8818
TUCSON	602/571-0275	IDAHO		MINNESOTA		LAS VEGAS	702/873-0434	PROVIDENCE	401/732-6460	GALAX	703/236-2930
CALIFORNIA		LEWISTON	208/336-8540	DULUTH	218/723-8005	RENO	702/322-1200	SOUTH CAROLINA		HAMPTON	804/818-7119
ANAHEIM	714/635-6473	ILLINOIS		MINNEAPOLIS	612/858-3539	NEW YORK		CHARLESTON	803/797-8405	HARRISONBURG	703/433-4888
BAKERSFIELD	805/321-0112	AURORA	708/820-2005	ROCHESTER	507/285-1686	ALBANY	518/383-4435	CLEMSON	803/653-4702	LYNCHBURG	804/623-1480
CANOGA PARK	818/999-9068	BLOOMINGTON	309/662-8045	ST CLOUD	612/253-4248	BINGHAMTON	607/774-2986	COLUMBIA	803/252-6806	ROANOKE	703/989-6932
EL MONTE	818/444-1173	CHAMPAIGN	217/398-1712	MISSOURI		BUFFALO	716/884-5232	GREENVILLE	803/242-3474	WASHINGTON	
ESCONDIDO	619/747-5803	CHICAGO	312/444-0555	COLUMBIA	314/449-0729	ITHACA	607/257-7526	SPARTANBURG	803/583-1412	BELLINGHAM	206/733-3421
FRESNO	209/233-1291	DE KALB	815/578-2042	JEFFERSON CITY	314/634-4025	MEVILLE	516/753-2030	SOUTH DAKOTA		RAPID CITY	605/342-0680
INGLEWOOD	213/337-1187	DECATUR	217/422-4012	KANSAS CITY	816/842-3009	TEXAS		SIOUX FALLS	605/338-6080	CHEYENNE	307/235-6768
IRVINE	714/476-9376	DES PLAINES	708/825-5070	INDIANA		AUSTIN	512/480-9977	TENNESSEE		CLYDE	206/357-7499
LANCASTER	805/723-6729	DOLET	815/722-8517	BLOOMINGTON	812/330-0005	BEAUMONT	409/832-0180	CHATTANOOGA	615/622-7823	PLUMMAN	509/334-4154
LONG BEACH	213/428-9140	MOULNE	319/322-4949	FORT WAYNE	219/484-3963	BRYAN	409/822-2877	JOHNSON CITY	615/282-1104	SEATTLE	206/455-9260
MARYSVILLE	916/742-4114	INDIANAPOLIS	317/266-0962	GARY	219/736-2708	CORPUS CHRISTI	512/888-8294	KNOXVILLE	615/690-1957	SPOKANE	509/624-7128
MODESTO	209/576-2451	KOKOMO	317/452-4744	KOKOMO	317/452-4744	DALLAS	214/788-4651	MEMPHIS	901/452-7111	TACOMA	206/572-4125
MONTREY	408/899-8846	LAFAYETTE	317/742-8485	LAKE CHARLES	317/742-8485	EL PASO	915/778-8196	NASHVILLE	615/360-2100	WISCONSIN	
OAKLAND	415/268-3782	MUNCIE	317/289-0389	SOUTH BEND	219/234-9938	FORT WORTH	817/348-0171	OAK RIDGE	615/483-7875	APPLETON	414/734-7188
OSNARD	805/486-8699	SOUTH HAUTE	812/234-2484	IOWA		GALVESTON	409/938-0914	TEXAS		EAU CLARE	715/834-2576
PASADENA	818/584-1194	INDIANA		AMES	515/233-3460	HOUSTON	281/774-2986	AMARILLO	806/744-6911	GREEN BAY	414/435-3523
PLEASANTON	415/734-8801	BLOOMINGTON	812/330-0005	CEDAR RAPIDS	319/363-6965	IRVING	972/453-7552	AUSTIN	512/480-9977	MADISON	608/257-4955
PLEASANTON	415/734-8801	FORT WAYNE	219/484-3963	DES MOINES	515/243-2803	LONGVIEW	903/753-1929	BEAUMONT	409/832-0180	ALBUQUERQUE	505/255-0108
PLEASANTON	415/734-8801	GARY	219/736-2708	DUBUQUE	319/556-8702	LUBBOCK	806/744-6911	BRYAN	409/822-2877	RACINE	414/632-9188
PLEASANTON	415/734-8801	INDIANAPOLIS	317/266-0962	IOWA CITY	319/354-1033	MIDLAND	915/697-0462	CORPUS CHRISTI	512/888-8294	SHELDON	414/432-7033
PLEASANTON	415/734-8801	KOKOMO	317/452-4744	LAKE CHARLES	317/742-8485	SAN ANGELO	915/653-6063	DALLAS	214/788-4651	WALSUAUR	715/842-5049
PLEASANTON	415/734-8801	LAFAYETTE	317/742-8485	MUNCIE	317/289-0389	SAN ANTONIO	512/271-0752	EL PASO	915/778-8196	WEST VIRGINIA	
PLEASANTON	415/734-8801	MUNCIE	317/289-0389	SOUTH BEND	219/234-9938	SAN ANTONIO	512/271-0752	FORT WORTH	817/348-0171	CHARLESTON	304/345-7614
PLEASANTON	415/734-8801	SOUTH BEND	219/234-9938	TERRE HAUTE	812/234-2484	SAN ANTONIO	512/271-0752	GALVESTON	409/938-0914	HUNTINGTON	304/529-9324
PLEASANTON	415/734-8801	TERRE HAUTE	812/234-2484	IOWA		SAN ANTONIO	512/271-0752	HOUSTON	281/774-2986	MORGANTOWN	304/256-0365
PLEASANTON	415/734-8801	INDIANA		AMES	515/233-3460	SAN ANTONIO	512/271-0752	IRVING	972/453-7552	PARKERSBURG	304/485-3446
PLEASANTON	415/734-8801	BLOOMINGTON	812/330-0005	CEDAR RAPIDS	319/363-6965	SAN ANTONIO	512/271-0752	LONGVIEW	903/753-1929	WHEELING	304/233-4796
PLEASANTON	415/734-8801	FORT WAYNE	219/484-3963	DES MOINES	515/243-2803	SAN ANTONIO	512/271-0752	LUBBOCK	806/744-6911	WYOMING	
PLEASANTON	415/734-8801	GARY	219/736-2708	DUBUQUE	319/556-8702	SAN ANTONIO	512/271-0752	MIDLAND	915/697-0462	CASPER	307/235-8611
PLEASANTON	415/734-8801	INDIANAPOLIS	317/266-0962	IOWA CITY	319/354-1033	SAN ANTONIO	512/271-0752	SAN ANGELO	915/653-6063	CHEYENNE	307/235-8611
PLEASANTON	415/734-8801	KOKOMO	317/452-4744	LAKE CHARLES	317/742-8485	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752	LARAMIE	307/745-8767
PLEASANTON	415/734-8801	LAFAYETTE	317/742-8485	MUNCIE	317/289-0389	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752
PLEASANTON	415/734-8801	MUNCIE	317/289-0389	SOUTH BEND	219/234-9938	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752
PLEASANTON	415/734-8801	SOUTH BEND	219/234-9938	TERRE HAUTE	812/234-2484	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752
PLEASANTON	415/734-8801	TERRE HAUTE	812/234-2484	IOWA		SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752
PLEASANTON	415/734-8801	INDIANA		AMES	515/233-3460	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752
PLEASANTON	415/734-8801	BLOOMINGTON	812/330-0005	CEDAR RAPIDS	319/363-6965	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752
PLEASANTON	415/734-8801	FORT WAYNE	219/484-3963	DES MOINES	515/243-2803	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752
PLEASANTON	415/734-8801	GARY	219/736-2708	DUBUQUE	319/556-8702	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752
PLEASANTON	415/734-8801	INDIANAPOLIS	317/266-0962	IOWA CITY	319/354-1033	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752
PLEASANTON	415/734-8801	KOKOMO	317/452-4744	LAKE CHARLES	317/742-8485	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752
PLEASANTON	415/734-8801	LAFAYETTE	317/742-8485	MUNCIE	317/289-0389	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752
PLEASANTON	415/734-8801	MUNCIE	317/289-0389	SOUTH BEND	219/234-9938	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752
PLEASANTON	415/734-8801	SOUTH BEND	219/234-9938	TERRE HAUTE	812/234-2484	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752
PLEASANTON	415/734-8801	TERRE HAUTE	812/234-2484	IOWA		SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752
PLEASANTON	415/734-8801	INDIANA		AMES	515/233-3460	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752
PLEASANTON	415/734-8801	BLOOMINGTON	812/330-0005	CEDAR RAPIDS	319/363-6965	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752
PLEASANTON	415/734-8801	FORT WAYNE	219/484-3963	DES MOINES	515/243-2803	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752
PLEASANTON	415/734-8801	GARY	219/736-2708	DUBUQUE	319/556-8702	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752
PLEASANTON	415/734-8801	INDIANAPOLIS	317/266-0962	IOWA CITY	319/354-1033	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752
PLEASANTON	415/734-8801	KOKOMO	317/452-4744	LAKE CHARLES	317/742-8485	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752
PLEASANTON	415/734-8801	LAFAYETTE	317/742-8485	MUNCIE	317/289-0389	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752	SAN ANTONIO	512/271-0752

Another example of the power of contracts in the on-line environment occurred recently on the Well, a national system based in San Francisco (and highly recommended to all those interested in discussing on-line legal issues). A Well user complained that a message he had posted in one Well conference area had been cross-posted by other users to a different conference area without his permission.

A lengthy, lively discussion among Well users followed, debating the problem. One of the major benchmarks for this discussion was the basic service agreement between the Well and its users. And a proposed resolution of the issue was to clarify the wording of that fundamental agreement. Although "copyrights" were discussed, the agreement between the Well and its users was viewed as a more important source of the legitimate rights and expectations of Well users.

Your state and federal "rights" against other on-line players may not be worth fighting over if you can get a contract giving you the rights you want. In the long run, the contractual solution may be the best way to set up a decent networked on-line system environment, except for the old bogeyman of government intrusion (against whom we will all still need our "rights", Constitutional and otherwise).

CONCLUSION

There are many different laws that system operators must heed in running their on-line services. This can lead to restricting system activities under the most oppressive legal standards, and to unpredictable, system-wide interactions between the effects of the different laws.

The "net" result of this problem can be undue restrictions on the activities of system operators and users alike.

The answers to this problem are simple in concept, but not easy to execute. First, enact (or re-enact) all laws regarding electronic services on a national level only, overriding individual state control of system operators activities in cyberspace. It's time to realize that provincial state laws only hinder proper development of interstate electronic systems. As yet, there is little movement in enacting nationally effective laws. Isolated instances include the Electronic Communications Privacy Act and the Computer Fraud and Abuse Act, which place federal "floors" beneath privacy protection and certain types of computer crime, respectively. On the commercial side, the new Article 4A of the Uniform Commercial Code, which normalizes on-line commercial transactions, is ready for adoption by the fifty states.

Second, all laws regulating on-line systems must be carefully designed to interact well with other such laws. The goal is to create a well-defined, reasonable legal environment for system operators and users.

The EFF is fighting hard on this front, especially in the areas of freedom of the press, rights of privacy, and rights against search and seizure for on-line systems. Reducing government intrusion in these areas will help free up cyberspace for bigger and better things. However, the fight is just beginning today.

[Lance Rose is an attorney who works primarily in the fields of computer and high technology law and intellectual property. His clients include on-line publishers, electronic funds transfer networks, data transmission services, individual system operators, and shareware authors and vendors. He is currently revising SYSLAW, The Sysop's Legal Manual. Lance is a partner in the New York City firm of Greenspoon, Srager, Gaynin, Daichman & Marino, and can be reached by voice at (212)888-6880, on the Well as

"elrose", and on CompuServe at 72230,2044. Copyright 1991 Lance Rose - Editor]

WHO PRODUCED THE FIRST PUBLISHED BBS LIST?

The world of electronic bulletin boards is rediscovered all over again each year by a new generation of online enthusiasts. Each generation seems convinced they "discovered it" themselves - and in a way, they did. But the BBS world is actually nearly as old as the microcomputer itself. Ward Christensen and Randy Seuss set up what is acknowledged as the first electronic bulletin board system in Chicago in 1978 and February 16th is celebrated as the official first day of operation.

The other common thread is the urge to "create a list." This urge birthed Boardwatch Magazine, so we're familiar with it - but we didn't originate it. So many enthusiasts compile lists of BBS for various purposes that we now compile a list of people who keep lists as a regular feature of Boardwatch.

The first printed magazine coverage we can find of the BBS world appeared in the January 1980 issue of *kilobaud MICROCOMPUTING* a long defunct magazine originally published by Wayne Greene. *kilobaud* served as a very popular resource to PC enthusiasts and many mourned its demise after many of the Greene titles was sold to BYTE Magazine.

The January 1980 issue featured a cover photo of the CBBS Boston electronic bulletin board and an article on page 26 by none other than Frank Derfler. Derfler continues in the magazine publishing field to this day with PC Magazine test labs and probably provides the best coverage of local area network and communications issues in the

business even yet. The original article was titled *Dial-Up Directory* on page 26 of that issue and marked the beginning of a series of columns on BBS and online services Derfler maintained for several years. It also marks the first BBS list printed in a serial publication as far as we can determine. The first list contained three entries in the January 80 issue and ran to 225 systems before he dropped the list in the February 1991 issue.

Derfler's "first BBS list" listed a CBBS system in Dallas run by Ric Martin and Bill Kennedy, another in Atlanta run by Les Freed, and CBBS Northwest in Oregon, operated by Jim Willing and Bill Marx. Incredible though it may seem, one of these systems is STILL in operation and STILL uses the original CBBS software written by Ward Christensen. CBBS Northwest is not only still receiving calls at the original (503)-646-5510 number listed in Derfler's column, but rather than operating as a historical marker, apparently is STILL doing some recent traffic in messages and appears reasonably well maintained. CBBS/NW, 1346 N.E. 28th, Portland, OR 97232; (503)288-9695 voice.

Today, Derfler notes that a great many advances over the past eleven years have made BBS technology much more capable, but in many ways little has changed. PC Magazine is working on a piece for their upcoming September issue on BBS systems. But we found it fascinating to compare Derfler's 1980 views to our present world of BBS systems. While some of the references to Code-a-phone, originate/answer issues, baud rates, etc. are clearly dated, in other ways much is still the same. It is certainly interesting to examine the early thoughts on BBS systems, then termed CBBS for Computer Bulletin Board Systems. We were unable to ascertain why the C was dropped eventually in favor of BBS, but with his permission, we present here the full text of his original first BBS column.

DIAL-UP DIRECTORY

by Frank J. Derfler Jr.

The hallways of companies in the computer industry ring with phrases such as "distributed processing" and "smart terminals." Mega-dollar corporations are modifying their management structures to take advantage of the synergistic relationship between computers and communications. Flashy executives and congressmen too consider it a "perk" (non-taxable) to be able to dial into their mailboxes from a portable terminal and sort through their old and new messages. Military communications planners talk about many network terminals sharing a "data base in the sky." There is no reason why those of us with our own microcomputers can't participate in the exciting world of digital information transfer just like the megabuck boys.

Introduction

This is the start of a new *Microcomputing* feature called the Dial-up Directory. The Dial-up Directory will have two purposes: to provide (1) an annotated directory of those computer bulletin board services (CBBS) that exist around the country and of those individuals interested and capable of exchanging data by phone and (2) information on software and systems that can give you a dial-up capability.

We all have different interests and ways of utilizing our computers. Often our interests and requirements are not shared by local individuals or clubs. It is extremely helpful to be able to share programs and suggestions via data phone calls from around the country.

Whether your interests are graphics on the Apple, games on the PET, number crunching on the North Star, or computer-assisted instruction on the TRS-80, there are others out there similarly inclined. We will try to hook you up.

We will have a lot of work to do together. We will have to work out and spread the word not only on electronic protocols, but also on those human protocols that exist whenever people interact with one another. We will describe ideal ways of doing things, the cheap way of doing things, and the road down the middle. First, though, let's describe the world we will be looking at for those who may not be familiar with it.

Getting Started

Almost all of the computers we own have a practical communications capability of one sort or another. The cassette recorder port on most machines is one example.

The main I/O capability we are interested in is the RS-232 ASCII port available either stock or as an accessory on almost every microcomputer. Cassette and disk formats may differ between brands of computers and, indeed, even between models of the same brand, but the RS-232 ASCII port brings everything out in a common electrical medium of exchange. My OSI can talk to your TRS-80 at a useful speed, and we can exchange programs and information over a communications link.

Probably the best (but certainly not the only) communications medium we have between us is the telephone line. The U.S. still has the best overall phone system in the world (Japan and some sections of the Middle East are coming up fast), and the telephone represents an economical way of sending our minds out around the country.

In order to convert and send the digital plus and minus voltages of the RS-232 signal over the phone lines, we need a device called a modem, which converts these dc voltages into audio tones. The tones are received by a modem at the distant end and converted back into dc. The Bell system set the standards for low-speed (to 300 baud) modems; their Bell 103A standard is typically used. Under this standard, each party (one

called the "originate" and one called the "answer") uses a different set of tones.

This means that if I wanted to call you and send you the nifty program that I just wrote to water my vegetable garden, we would first have to verbally agree on the speed (110 and 300 baud are the most common) and on which one of us would use the originate signaling tones and which one would use the answer tones. Then we would connect our modems to our phones and send data.

Obviously, one of us would have to have a modem capable of operating in the answer mode. This is important because as you read modem ads you should look for the capability you need. Many modems are originate only. Many others advertise themselves as originate/answer but don't make it clear that the option requires extensive rewiring. "Switchable originate/answer" is the key phrase for complete flexibility.

Potential Difficulties

Establishing contact by phone probably only means you are over the hardware hurdle. Another favorite buzz phrase in large system procurement today is that hardware is easy...it's software that's difficult. Once you receive my data on your system, what can you do with it? With the right software, your system can save it on disk or tape to recall and use again at your convenience. We will talk about software to do that in future articles.

Without the right software, you can only print out the data you receive. But at least you have a hard copy to refer to. If your computer acts only as a "dumb terminal," then you can probably have a nice chat, but you may have only a few scribbled notes to remember it by.

Other difficulties may be thrown into our exchange of data if I am not free to get on the phone at the same time you are. There are two ways around this: an auto answer

capability to allow access with the terminal unmanned (after all, what good is automation if you can't put yourself out of a job?) and a store and forward service.

These services exist in many places around the country. They are typically known under the generic name of computer bulletin board services (CBBS). I can dial into this service (actually, anybody's system with an automatic answer modem, the right program, sufficient memory and a large electric bill), select the bulletins I want to read and leave a copy of my rutabaga-watering program.

In that way, you and everybody else on the system can review my program at your convenience. This is practically the ideal information exchange. Would you like to take part? That is the goal of this series.

The Directory

We would like to publish the name (use a pseudonym if you like, but no CB call signs, please) and phone number of anyone presently capable of and interested in receiving data calls. We will need any specifics or limitations, such as baud rate, answer only, special control codes or carriage returns. We need to know when and on what days you will be interested in receiving calls. We will also have room for information on interests - stock market analysis, for example.

One of our biggest services can be getting people with similar interest in touch with each other - digitally. Because of the various time zones involved, I would suggest we use Coordinated Universal Time (also known as GMT, Zulu or WWV time). A quick reference GMT-to-local-time conversion chart is included in Table 1. [omitted in this reprint - editor]

Remember: You may be getting calls from around the country, so it is only common courtesy to keep your 5-year-old from answering the phone during the times you specified, and it might be nice to not answer at all if you are not interested or able to transfer data

on a specific day. A firm promise to return the call at another time is probably the least you owe someone who called you in good faith. An automatic audio answering device such as a Code-a-phone will allow recording up to 30 seconds of received data. We'll also discuss transferring data from the Code-a-phone to the computer in a later article.

In this introductory article, let me acquaint you with three excellent computer bulletin board services (see Directory). They represent a good starting point because they each contain extensive prompts and guides to make your telecommunications trials less terrifying. They are all available 24 hours a day, work either 110 or 300 baud and operate in the answer mode. They are free of any financial charge and don't need any passwords or codes, but that can all change if they are abused. The rules are just like those for a campground: keep it clean, don't leave any garbage behind, and don't overstay your welcome, because others are waiting to use the facilities.

You can enter any of these systems by dialing the phone number, connecting your modem as soon as you hear the answering tones begin and sending at least three carriage returns. The host computer will read the carriage returns and reply at the proper speed. It is then that the fun begins.

Let me hear from you if you want to receive data calls or if you operate a CBBS.

INTERNET NEWS

CERFNET ACCESS FOR BOARDWATCH READERS

Last issue we listed several of the mid-level network service providers who can connect you to Internet using an ordinary modem dial-up connection. We mentioned the California Education and Research Federation Network, CERFnet,

describing their DIAL 'N CERF program at \$5 hourly, with a \$25 monthly account charge and \$200 sign up fee.

The bad news is that we got it a little scrambled. The sign up fee is actually \$250, the monthly account charge is \$20, but it is \$5 hourly for access.

The good news is that Susan Estrada of CERFnet was quite taken with the article, inaccuracies aside. She's offered to WAIVE the sign up charge of \$250 for all Boardwatch readers who sign up before July 15, 1991. Simply ask for the "Boardwatch Special" and you can have Internet access for \$20 monthly plus the \$5 hourly charge and NO sign up fee. You may contact CERFNet at:

CERFnet.
P.O. Box 85608
San Diego, CA 92186
800-876-CERF(2373) voice
Internet: help@cerf.net

FIND A FRIEND ON INTERNET - THE KNOWBOT ONLINE E-MAIL DIRECTORY

Internet makes global e-mail a reality. But addressing e-mail properly is still THE issue plaguing most new users. Wouldn't it be nice to have a "telephone book" directory where you could look up someone and find their e-mail address?

The International Consultative Committee on Telephone and Telegraph (CCITT) thought so. They developed a standard termed X.500 to cover e-mail address databases. Right now, representatives from nearly all the public e-mail companies are meeting, along with several aerospace companies and the U.S. Postal service, to try to determine how to implement X.500.

While they ponder, the Corporation for National Research Initiatives has a system up and running titled the Knowbot Information Service. Knowbot is a fledgling "master directory" that contains e-mail address information from the

NIC WHOIS database, the CSNET WHOIS database, the PSI White Pages Pilot Project, the NYSERNET X.500 database and even MCI Mail. Most of these services are e-mail registries themselves, but Knowbot provides a very easy to use access to all of them in one place.

To access Knowbot from Internet, enter:

telnet nri.reston.va.us 185

The 185 is a port number dedicated to this database and is important. The system provides a bare prompt, but there is not too much to know. You can type MAN to get a brief command description. But we found the system very easy to use.

Enter the name of the person you're looking for. The system finds any entries containing that name, and prints the information about them. This information varies depending on what service they are on, but generally, you get their name, some form of location that can include a full mailing address, their e-mail address, the system they are on, and in some cases, their ID. We entered Jack Rickard with no punctuation, no magic symbols, and no other delimiters at all, and the system found our MCI mail account within about two seconds.

Knowbot doesn't at this stage cover the planet. It's not a universal directory at this time, but it is a big step in the right direction. The interface is simple enough for an eight year-old, and they have got an impressive database of those active online.

VOYAGER IMAGES AVAILABLE ON CD-ROM

We've watched a number of Public Television Station broadcasts detailing the Voyager mission to the outer planets. The computer enhanced images of Neptune, Jupiter, Saturn, and Uranus held us appropriately agog. We found out, through Internet, that those im-

ages, and thousands of others, are about to be released on CD-ROM to the public. And the price is simply astounding.

Many of the images are a bit short of dramatic. The Voyager spacecraft transmitted thousands of dreary images only a scientist could love. Others reveal an other-world beauty that is breathtaking. You can now own the entire set.

- URANUS (Volumes 1-3) - 6538 images
- SATURN (Volumes 4-5) - 4000 images
- JUPITER (Volumes 6-8) - 6000 images
- NEPTUNE (Volumes 9-12) - 10,000 images.

In a twelve disk CD-ROM set, you have over 26000 image files, and they come with the Image Display (IMDISP) program required to view them on screen. What would you pay for this treasure trove? \$3000? \$5000? Well, in a way you already did. Sending Voyager spinning out into the void was a relative bargain as space shots go, but it still wasn't cheap. But the images are available to the general public at \$90 for the set of 12 disks. Contact Mr. Randall Davis, LASP, Campus Box 392, University of Colorado, Boulder, CO 80309; (303)492-6867 voice; (303)492-5105 fax.

APPLE II BBS OFFERS INTERNET ACCESS

Increasingly, BBS are seeking ties to Internet - to swap e-mail and carry Usenet News Groups at a minimum. But Blake Farenthold brought our attention to something we just didn't expect - a network of Apple II systems that are not only tied to each other, but routinely carry Internet News Groups.

Morgan Davis has been writing software for the Apple II since 1983 and has also written several publications on the subject. He moderates the Apple conference on the BYTE Information Exchange

(BIX). He is also author of **PRO-LINE**, a BBS package for Apple II and Apple GS computers.

Proline looks, acts, and feels like Unix. The message areas behave very similar to conferencing software, and the package can perform a UUCP (Unix to Unix Copy Program) protocol session. The Apple being what it is, you're generally limited to a single telephone line, about 80MB of disk space tops, and BBS typically carry about 10 Usenet News Groups. But these little boards are connected in a tight network of about 75 Apple II systems and they do interface with Internet.

The Unix host has to run a shareware program to make the connection. Bill Blue wrote a program titled **Pnet** that runs on most Unix systems to accommodate the Proline systems. Contact bblue@crash.cts.com about Pnet.

We dialed into Davis's **pro-sol** BBS in Rancho San Diego at (619)670-5379. The system doesn't appear terribly active and many of the messages were old. But the speed and power of this little BBS system running on an Apple II were quite impressive. Morgan Davis, 10079 Nuerto Lane, Rancho San Diego, CA 92078; (619)670-0563 voice; (619)670-9643 fax; mdavis@pro-sol.cts.com.

LIBRARY OF CONGRESS ONLINE

Our article on Colorado SuperNet in the March 1991 issue of Boardwatch listed about 50 major libraries around the country offering Internet access through the telnet program. But we've recently found the top of the heap. Data Research Associates Inc. of St. Louis is currently offering what appears to be the entire **Library of Congress** online.

This is not a full text service, but the 3.5 million card catalog records from the U.S. Library of Congress listing records from the

Books All, Maps, Music, Serials, and Visual Materials service as distributed by the Cataloging Distribution Service of the Library of Congress.

To access the service from Internet, enter **telnet dra.com**. The system works best with VT-100 terminal emulation. It allows you to search the database by author, title, ISBN, ISSN, LCCN, as well as qualifying searches by language, copyright date, or cataloging format.

We tried out the service searching for two titles that should put it through the paces. We entered **BOARDWATCH** under title. The system not only found our obscure little serial publication, but it did it **RIGHT NOW** - the search engine on this service is fantastic. It lists title, author, publisher info, physical description, subjects, ISSN, and even which issue the original description was taken from. The service even keyed us to the **PREVIOUS** title for this publication, **Denver PC Boardwatch**.

We'd also been casting about for Buckminster Fuller's 1950 book titled **CRITICAL PATH**. Again, the system pulled the information immediately - listing St. Martin's Press as the publisher, which was what we wanted to know.

For more information about this service, contact Data Research Associates, Inc., 1276 North Warson Road, St. Louis, MO 63105; (314)432-1100 or sales@dra.com.

LONG DISTANCE USA

CIARCIA'S CIRCUIT CELLAR BBS

Steve Ciarcia has to be the preeminent "gadget guy" in the world. For years he published projects in **BYTE MAGAZINE** to build circuit cards to unwind toilet paper rolls, control windows in your house, gather weather data

from your roof, and make coffee. The man would automate sex if he could get the I/O figured out.

More recently, he's founded a magazine titled **Circuit Cellar Ink, The Computer Applications Journal** that deals primarily with single-board computers, device controllers, and widgets of the same ilk. Affiliated with the magazine is the **Circuit Cellar BBS** in Vernon Connecticut, operating at (203)871-1988 using TBBS multiline software. The system operator is actually Ken Davidson and the system provides three 2400 and one 9600 bps access lines.

The service allows callers to subscribe to **Circuit Cellar Ink** at \$14.95 for six bimonthly issues. It also provides files for all the software involved in projects for both **Circuit Cellar Ink** and **BYTE Magazine's** Ciarcia's Circuit Cellar projects. We found numerous files dealing with X10 controller projects. This is a bit of a standard for home controllers that transmit control codes over the AC power lines to turn lamps on and off etc. There were also files for the Image-Wise video digitizer, a digital oscilloscope project, remote data loggers, darkroom timers, MIDI sound samplers, a video handscanner, robot arm control project, etc.

The system is plain in presentation and of course quite technical. But we did find some interesting programming languages available for download including **FORTH** for the IBM PC, the Personal C compiler, several assembly language compilers, and some cross-assemblers. There was also a reasonably complete engineering software download area with PC Board layout design software, CAD programs, and PSpice - an electronic engineering package that allows you to design electronic circuits and perform analysis on their operation on screen.

If you've followed Ciarcia's Circuit Cellar columns and enjoy the hardware project end of computing, this BBS, though plain, should be useful. Circuit Cellar Incorporated, 4



FidoCon '91

The 1991 International BBSing and Electronic Communications Conference

More Than Ever Before
Your Connection To The World

August 16 - 18, 1991
Denver, Colorado



More Functions

Dealer's and Vendor's Room
Hospitality Suites
Educational Seminars
Drawings for Prizes
A Real Wedding (They Met by Net)

More Conferences

How to Start a Communications Net
Security and Virus Protection
What is the Best Software for Me?
Making Your Net Work for You
Protection from Electronic Vandals

More Speakers

John Perry Barlow on Freedom
Tom Jennings on FidoNet
Tim Pozar on Inter-NetWorking
Phil Becker on TBBS
Jack Rickard on Communications

More Manufacturers

U.S. Robotics - Modems
System Enhancement Associates
Online Communications - FrontDoor
Mustang Software - WildCat BBS
eSoft - TBBS and TDBS

DENVER BBSING CONFERENCE

Denver will be the host of an International BBSing Conference to be held August 16-18, 1991 at the Lakewood Sheraton Hotel and Conference Center. Called FidoCon '91, all BBS Operators and Users, as well as those interested in electronic communications and networking are encouraged to attend.

Running three full days, this conference includes manufacturers, software suppliers, writers, and dealers, and will be educational, informative and fun.

Special events include: a "mud-pie" Throw for Charity (Multiple Sclerosis), a Western-Style Awards Banquet, a Wedding, and drawings for prizes including a full, multi-line BBS System, complete with modems, hardware and software.

Special guests include: Tom Jennings (who will arrive in a natural-gas powered auto) - known as the "inventor" of FIDO; Steve Jackson (CEO of Steve Jackson Games, author of Gurps Cyberpunk) - speaking on BBSing and what

to do when your system is seized; Phil Becker (CEO of eSoft) - speaking on TBBS, and many others.

FidoCon '91 is a limited attendance event. It will be **THE BBSing Event of 1991 - BE THERE!**

Seminars Include:

Copyrights Demystified
What is a Copyright, and How Does it Impact Distribution of Software?

Networks and Your Company
Discussions Involving the Paybacks of Establishing a Telecomputer Network.

BBSing in the 90's - and Beyond
Legal Issues Pertaining to BBS Running.

Gateways - Inter-Network Connections
Communicating Between Networks.

Promoting Your BBS
Drawing the Users You WANT to Your System.

BBS Business Sense
Your BBS Can Support Itself - and You.

Network Ethics
What to Expect? What is Expected?

FidoCon '91 Rates and Fees (All \$US)

VIP Membership (to 07/15/91) . \$104.00
Banquet (optional) \$25.00
Significant Other (optional) \$9.69
FidoCon '91 T-Shirt (optional) \$15.00

Hotel (Call Direct): Sheraton Lakewood
360 Union Blvd., Lakewood, CO 80228
(303) 987-2000

Rooms: (All \$US per night + tax)
Single/Double \$59.00
Adjoining (Pseudo-Suite) \$118.00
Triple/Quad \$78.00
Adjoining (Pseudo-Suite) \$156.00

Make Checks Payable To: FidoCon '91
VISA and MasterCard Accepted
Be SURE to include your Name, Mailing Address, Telephone Number, Network Address (if any), T-Shirt Size, and Credit Card Number and Expiration Date (if applicable).

Mail Membership To:

FidoCon '91
P.O. Box 486, Louisville, CO 80027-0486

For Information or Online Registration:
(303) 426-1942 (data) 3/12/2400 baud
(303) 426-1847 (voice) 9am-9pm MDT

Park Street, Suite 20, Vernon, CT 06066; (203)875-2751 voice; (203)871-1988 data.

FIDONET/RELAYNET CONNECTION FOR MAJOR BBS

Galacticomm's The Major BBS software product has gained some popularity among those operating multiline entertainment/chat systems. The product allows you to run up to 64 access lines from a single PC and has excellent chat functions and a wide array of third-party online game programs are available for use with the system. While the conventional BBS paradigm is to hold discussions by message areas - where callers can participate at their own convenience - chat conferences are also popular. Callers dial in and actually hold discussions in real time through their keyboards. With the multiplayer games, they can even participate as a group in adventure games, five-card draw poker, and in one case, in a simulation of a boxing match. There is something intriguing about playing poker with five other players, each dialing in from a different city.

One of the most popular functions of most BBS systems is the ability to participate in distributed message conferences. These are message areas on the BBS that are shared or "echoed" to hundreds, perhaps even thousands, of other BBS across the country and around the world. Hundreds of such topical message areas are available from many systems and it dramatically broadens the diversity of the callers participating. Major BBS has in the past been completely isolated from this phenomenon since there was no technical way of linking the Major's Special Interest Group (SIG) message areas with the broader world of FidoNet or Relaynet.

Skip Potter has changed all that. He ran a popular RBBS system in Virginia titled TOPGUN that participated in Relaynet. He decided he wanted to operate a more ambitious multiline service and selected The Major BBS as the software. After bringing the new sys-

tem up as **micro*LINE Information Network (703)425-7993**, his callers complained bitterly about the loss of Relaynet mail. So Potter created a package he calls **MjrUTI** (Universal Text Interface) to connect Major BBS with Relaynet. Each night, his system shuts down Major BBS as a scheduled event. **MjrUTI** scans all the outgoing messages directly from the Major BBS message base, dials his Relaynet connection, drops off the outgoing mail and picks up any incoming. The program then tosses the incoming mail into The Major BBS message areas, and finally restarts Majors. In this way, his multiline system could participate in Relaynet. He now runs 20 lines on **micro*LINE**. He released **MjrUTI** a year ago at \$150 for the package and has since sold over 200 copies. ProStar Software markets the package for him.

Once **MjrUTI** was out, a Chicago system operator contacted Potter about doing a version to handle FidoNet Echomail. As a result, a couple of months ago Potter released **MjrFIDO**. This package includes the Front Door mailer program, **CONFMAIL** echomail processor, the **X.00** fossil driver, and **MjrFIDO** itself. The package is also priced at \$150 and imports/exports FidoNet Mail conferences from the 11,000 member FidoNet.

While **MjrUTI** and **MjrFIDO** do give The Major BBS networking capability, the system still can't operate as a hub or in "crashmail" mode allowing mail transfers on a 24 hour basis. Essentially, Major BBS operators run an event to do the mail import/export function. But **MjrUTI** and **MjrFIDO** can give Major BBS a minimal ability to import/export conferenced mail into the message database. Potter still runs TOPGUN BBS as a FidoNet and Relaynet mail hub using RBBS software at (703)551-0308.

micro*LINE Information Network has developed a following by offering a variety of online games including POKER. The system is currently undergoing a name change to **The Strategies Online**

Service. **micro*Line Information Network, Inc.**, 15260 Mimosa Trail, Dumfries, VA 22026; (703)658-4733.

ORDER FLOWERS ONLINE

It's not precisely a BBS in the classic sense, but we found it interesting. **Walter Knoll Florist** of St. Louis Missouri has installed a toll free system to allow you to order flowers by modem. The service operates at (800)745-2837 using a somewhat Spartan version of Galacticomm's Major BBS Online Shopping Mall edition.

The Knoll family has been in the flower business for many years. The online service allows you to order flowers by modem and have them delivered within a day or two. We called very early on a Sunday morning and they indicated delivery late Monday. The floral business has actually been quite aggressive in automation and the FTD network allows you to have flowers delivered virtually worldwide.

The system offered a selection of 37 different arrangements for Mother's Day, Secretary's Week, or whatever. A brief descriptive paragraph is provided for each product - ranging in price from \$19.95 to \$74.95. In addition to floral arrangements, Knoll's offers a few fruit baskets and snack packs as well.

The service allows you to actually order online. We found a few things quite wrong with this process. It totals your order and displays this total on screen with the proviso that the total DOESN'T include shipping, delivery, and other applicable charges. So there is really no way to order and have any idea what your order will cost. Aside from this one minor glitch, the online service might provide an interesting out for those caught late on the eve of a birthday, half a continent away, with nothing but a modem and a credit card to save them. The company also accepts fax orders at (314)352-7621 and voice at (800)777-9903

K12NET - LINKING BULLETIN BOARDS FOR EDUCATION

Telecommunications offers the promise of gain to a wide variety of groups, but none more so than education. Merely the process of going online involves nothing so much as reading and writing, and reading and writing some more. Children encouraged to go online will benefit enormously, if they never discuss anything more intellectual than "New Kids on the Block" or "Middle-Aged Mutant Ninja Fathers".

But we've always thought it would be nice if the professionals in education would "catch on" at some point and put the technology into play for the benefit of students. The release from time/space restrictions has to be a powerful advantage and the ability to network and exchange ideas with other teachers and schools would be invaluable. But to date, progress in this area has lagged virtually all others. Many teachers, inexplicably, are actually hostile to the concept and it suffers widely from the "Not Invented Here" syndrome.

There are some administrative problems as well. Schools nationwide are just not equipped with telephone lines into the classroom.

There have been some forays into the field. But largely they've been very controlled, centralized experiments with chronically limited vision, the purpose and output of which was a "paper" by a single educator or group for status purposes. In fact, the never ending quest for status and peer acknowledgement in education has largely replaced "educating" as the primary objective.

Fortunately, there is a growing grass roots movement among actual classroom teachers to put networking technology into play. The

FREDMail network actually links Apple Computers, which are quite ubiquitous in schools, in a Fidonet-style network nationwide that has gained a following.

Currently, the hottest thing going is a very loose, decentralized project termed K12Net. K12Net currently links over a hundred electronic bulletin boards across North America, Australia, Europe, and soon the USSR, who "share" thirty some core echomail conferences specifically on education topics. It's global, and it is spreading tentacles into a variety of places, including Internet.

K12Net was conceived in June 1990, when three educators met online and discussed the possibility of linking schools using FidoNet technology. As best as we can determine, Jack Crawford, operator of the W-FL Teacher Resource Center BBS in Stanley New York; Gordon Benedict, a teacher in Calgary, Alberta, Canada; and Janet Murray, a librarian at Wilson High School in Portland Oregon, hatched to plot to connect the educational world online. By September of last year, the network was officially up and running and as of this writing, 101 bulletin boards are net members - that is they carry the 30 "core" echomail conferences making up the K12net "curriculum."

The primary contributing factor to this explosive growth is the network provides FREE international communications capabilities with local calling access. It is relatively simple to set up a K12Net BBS. And the network is very loose in organization - BBS are very much under the control of the local operator.

Basically, K12Net is a subset of the International FidoNet started by Tom Jennings in 1984. Today, FidoNet spans 10,000 BBS in over 50 countries and a rich set of communication programs and utilities serve this sprawling network. K12Net is made up of FidoNet systems sharing the core group of 30 education-related echomail groups. Teachers and students

can, for example, practice German in a German language echomail conference with students IN Germany - and students on both ends access free local BBS systems to do so.

Jack Crawford, one of the K12Net originators, has coined **CRAWFORD'S FIRST LAW OF TELECOMMUNICATIONS**: *"If it costs anything AT ALL - if there are ANY online fees or long distance charges involved - 90% of potential users won't even consider buying a modem, 6% will use it only sparingly and the remaining 4% will be charging it to someone else"*

Of course, we note a little conflict here in that **RICKARD'S FIRST LAW OF POMPOSITY** states that *"Anyone who names a law after themselves can't possibly have the faintest idea what they're talking about"*.

But Crawford does have a point. If your goal is to maximize online participation, the first order of business is to minimize costs to near zero.

Randy Bush, one of the very early FidoNet members who actually wrote most of the original FidoNet mail specification, has taken a direct interest in the project. With children in school, he's been a bit concerned about the Ivory Tower debate in Internet regarding the National Research and Education Network (NREN) initiative proposed by Senator Albert Gore. He's gating twenty of the K12Net echomail conferences to the Internet via m2xenix.psg.com in an effort to put some actual education grass roots activity out under the noses of those in Internet who may be prone to theorizing at the expense of action.

In addition to defined echomail conferences covering math, science, social studies, art, languages, and vocational subjects, K12Net provides an interesting innovation on the echomail concept they term "channels". These are open or empty standing echomail conferences that can be used for specific "projects" at any time. An

K12Net Echomail Conferences

K12_ART_ED..... ARTS & CRAFT
K12_BUS_ED..... BUSINESS EDUCATION
K12_COMP_LIT..... COMPUTER EDUCATION
K12_HLTH_PE..... HEALTH & PHYSICAL EDUCATION
K12_LIF_SKIL..... LIFE SKILLS EDUCATION.
K12_LANG_ART..... LANGUAGE ARTS EDUCATION
K12_MATH_ED..... MATHEMATICS EDUCATION
K12_MUSIC_ED..... MUSIC & PERFORMING ARTS EDUCATION
K12_SCI_ED..... SCIENCE EDUCATION
K12_SOC_STUD..... SOCIAL STUDIES EDUCATIONC
K12_SPEC_ED..... COMPENSATORY EDUCATION
K12_TAG..... TALENTED & GIFTED EDUCATION.
K12_TECH_ED..... TECHNOLOGY EDUCATIONV
K12_FRANCAIS..... FRENCH -ONLY DISCUSSION - LEVEL 1.
K12_SPAN_ENG..... SPANISH-ENGLISH PRACTICE ECHO
K12_GERM_ENG..... GERMAN - ENGLISH PRACTICE ECHO.
K12_NEWS..... K12Net NEWS.
K12_ELE_CHAT..... ELEMENTARY SCHOOL CHAT GRADES 1-6
K12_JR_CHAT..... MIDDLE SCHOOL CHAT GRADES 7&8
K12_SR_CHAT..... SENIOR HIGH SCHOOL CHAT GRADES 9-12
K12.SYSOP..... K12.SYSOP: **This is for sysops-ONLY**.
K12.TCH_CHAT..... TEACHER CHAT
K12.PROJECTS..... TELECOMMUNICATIONS PROJECTS

individual teacher might, for example, start a project on gathering data from different areas of the country on acid rain concentrations. Or compare the prices of fast food products globally to detect true price variations from country to country on a Quarter-Pounder and discuss what economic influences might account for variations. Students from the various areas gather data and enter it into the conference locally. Andy Vanduyne of Norwood Elementary School, 1:260/375, serves as channel coordinator.

Overall, K12Net provides an enormously encouraging foray into educational computing on a global scale and does it using existing technology at very low cost. Teachers don't need approval from twelve layers of administration, they can set up a BBS on their own and put it into play globally and immediately to connect to an exist-

ing network of other teachers and schools. We think this concept will prove popular and K12Net should grow prolifically over the next year. Teachers interested in setting up their own K12Net node can obtain more information from Jack Crawford, W-FL Teacher Resource Center, 3501-K County Road 20, Stanley, NY 14561; (716)526-6431 voice; (716)526-6495 data; Fidonet 1:260/620.

STOCK OF THE WEEK

ONLINE BROKERAGE COMPETITIVE RATES

For A Free Brochure
On CompuServe
GO TKR

300 - 9600 Baud Modem
(212) 809-1160
5PM to 9AM, Weekdays
24 Hours Weekends

Call Toll Free
(800) 223-6642 (Voice)

In New York Call
(212) 908-4550

Max Ule

26 Broadway
Suite 200
NY, NY 10004

a division of
Herzog, Heine, Geduld Inc.
Members New York Stock Exchange
Established 1926

K12Net

LIST OF EDUCATION RELATED BBS

<i>Fidonet</i>	<i>Title</i>	<i>Telephone</i>	<i>Operator</i>	<i>Location</i>
1:101/870	The Bungalow TBBS	508-759-1166	Daniel Crawford	Monument Beach, MA
1:102/805	GesherNet	818-340-4374	Alan Eber	West Hills, CA
1:103/315	Castle of the Four Winds	714-860-3213	Christopher King	Diamond Bar, CA
1:103/350	The Cloak of Illusion	1-714-871-089	David Steever	Fullerton, CA
1:105/114	The Electronic Educator	206-837-3299	Jack Loranger	Washougal, WA
1:105/200	Southern Hub	503-245-0229	Mehdi Attaran	Portland, OR
1:105/23	HI TECH TOOLS for Librarians	503-245-4961	Janet Murray	Portland, OR
1:105/29	The Catlin Gabel School BBS	503-292-7772	Lowell Herr	Portland, OR
1:105/303	Compulink NW I	503-640-1241	Bill Parrott	Hillsboro, OR
1:105/304	Compulink NW	503-648-3976	Bill Parrott	Hillsboro, OR
1:105/377	The Silver Falcon	503-643-8249	Joseph W. Stein	Beaverton, OR
1:105/405	Et Cetera	503-663-1459	Don Zirk	Gresham, OR
1:105/412	Wings BBS	503-667-5271	Mark Roberts	Gresham, OR
1:105/603	Salem Educators Online	503-399-2645	Ron Cross	Salem, OR
1:11/40	West Terrace BBS	812-985-7823	Keith Bobbitt	Mt. Vernon, IN
1:110/430	CURRENTS	513-253-2476	Randy Brown	Dayton, OH
1:128/17	Rivendell	719-472-0745	Ron Place	Colorado Springs, CO
1:134/49	The Student Exchange BBS	403-228-9525	Gordon Benedict	Calgary, Alberta, Canada
1:134/66	Calgary Message-Line BBS	403-244-4724	Ken Kennah	Calgary, Alberta, Canada
1:138/118	Keithley Komputer Komer	206-759-5550	Susan Cox	Tacoma, WA
1:139/930	The * ! Lighthouse ! *	906-428-3425	Paul Gerard	Gladstone, MI
1:152/13	PacHi BBS	503-348-2391	Paul Young	Port Orford, OR
1:152/30	The Ladder	503-343-9724	Carla Ridenour	Eugene, OR
1:153/734	ED-NET 9600	604-732-8877	Barry MacDonald	Vancouver, BC, Canada
1:153/734	ED-NET	604-732-8877	Barry MacDonald	Vancouver, BC, Canada
1:157/2	HelpNet for the Impaired	216-356-1872	Butch Walker	Rocky River, OH
1:157/3	Rocky River	216-356-1431	Butch Walker	Rocky River, OH
1:17/38	65' North	907-452-1460	Peter Stern	Fairbanks, AK
1:17/65	SETnet North	604-782-9126	John Beames	Dawson Creek, BC, Canada
1:19/14	The WordShop	405-765-0951	Wayne Majors	Ponca City, OK
1:202/114	The Chief's Mess	619-469-1354	Dave Rigney	San Diego, CA
1:202/201	The SW/SE Connection	619-467-0335	Al Bruner	San Diego, CA
1:202/701	Pacific Rim Information	619-278-7361	Brenda Donovan	San Diego, CA
1:202/717	32 45'40"N - 116 54'45"W	619-444-8438	Bill Segul	Rancho San Diego, CA
1:203/454	Sacramento Peace Child	916-451-0225	Frank Topping	Sacramento, CA
1:207/111	Gentle Rain BBS	714-593-6144	Richard Truitt	Claremont, CA
1:225/333	Wawatay	807-593-2154	Cindy Long	Summer Beaver, On Canada
1:244/118	Renzo's Roost	416-529-7569	Jerry Kiely	Hamilton, Ontario, Canada
1:260/10	Med TechNet	716-688-1552	Bill Hiliwa	Buffalo, NY
1:260/205	The Mountains of Shadow	716-381-4749	Jason DeCaro	Pittsford, NY
1:260/216	The Wilson Magnet CSC	716-436-4166	Jason DeCaro	Pittsford, NY
1:260/223	Interstellar Systems	716-554-5372	Ruthie Hoffman	Middlesex, NY
1:260/232	The Shack TOO	716-288-5848	Mike Ward	Rochester, NY
1:260/245	The Shack BBS	717-427-8423	Mike Ward	Rochester, NY
1:260/320	Phoenix High School	315-695-4070	Larry Curreri	Phoenix, NY
1:260/375	NORKIDS	315-353-4565	Andy Vanduyne	Norwood, NY
1:260/610	EFX Systems	716-396-2699	Ray Dobmeier	Canandaigua, NY
1:260/615	Scolasticom	315-597-3439	Dan Lafica	Palmyra, NY
1:260/620	W-FL Teacher Resource Center	716-526-6495	Jack Crawford	Stanley, NY
1:260/650	The School Board	607-324-3785	Dave Lampila	Homell, NY
1:260/690	Red Jacket School BBS	716-289-3926	Kevin McMahon	Shortsville, NY
1:267/108	Steamer One	518-753-7421	Ken Storm	Johnsonville, NY

K12Net

LIST OF EDUCATION RELATED BBS

<i>Fidonet</i>	<i>Title</i>	<i>Telephone</i>	<i>Operator</i>	<i>Location</i>
1:267/41	The HOST BBS	518-793-9574	Ross Calloway	Queensbury, NY
1:272/22	PC-Paradise	914-255-8154	Eric Barkie	New Paltz, NY
1:272/32	Acom I BBS	914-236-3265	John Ripke	Marlboro, NY
1:288/5	The ACADEMY	701-228-2908	Gleason Sackmann	Bottineau, ND
1:321/109	Pioneer Valley PCUG #1	413-256-1037	Mort Sternheim	Amherst, MA
1:321/110	SpaceMet Central	413-545-4453	Helen Sternheim	Amherst, MA
1:321/152	SpaceMet North	413-772-1020	Terry Dun	Greenfield, MA
1:321/218	Schoolhouse BBS	413-443-6725	Rob Reilly	Pittsfield, MA
1:321/220	The Cracker Barrel	413-447-9086	Rob Reilly	Pittsfield, MA
1:321/224	Hancock Schoolhouse	413-738-5676	Rob Reilly	Handcock, MA
1:321/302	SpaceMet South	413-536-7526	Helen Sternheim	Amherst, MA
1:322/360	Cul De Sac	508-429-8857	Pete White	Holliston, MA
1:324/0	Shakers BBS	508-774-0751	Bob De Almeida	Danvers, MA
1:343/9	The Precedent	206-355-1295	Dave Ball	Mukilteo, WA
1:345/2	Coconuts BBS	808-845-7054	Tom Taylor	Honolulu, HI
1:345/6	Leeward Friendly Users Net.	808-455-2966	Randy Molina	Waipahu, HI
1:346/3	TinySky	406-683-4901	Lee Hoyrup	Dillon, MT
1:346/4	Silver Bow BBS	406-723-5870	Don Plessas	Butte, MT
1:346/7	The Russell Country BBS	406-423-5433	Cynthia Denton	Hobson, MT
1:348/2	Tech Talk Toll	204-269-7373	Dave Sloan	Winnipeg, Manitoba, Canada
1:351/198	Nanaimo Schools BBS	604-756-0595	Mike Silverton	Nanaimo, BC, Canada
1:352/23	Dimension 23	206-456-6073	Rick Castle	Olympia, WA
1:352/761	The Squad Room BBS	206-438-6716	Sam Drake	Olympia, WA
1:353/240	The Polish Connection	604-768-3278	Ed Kwasniewski	Westbank, BC, Canada
1:362/401	The AIRPORT	615-499-4011	Ronnie Cramer	Chattanooga, TN
1:362/701	Apison Elementary BBS	615-265-2629	Beth Lamberson	Chattanooga, TN
1:362/714	Kastle in the Clouds	615-332-4598	Keevah McFarland	Soddy Daisy, TN
1:381/64	Academy K12 Net	915-598-1987	Ken Blystone	El Paso, TX
2:2/701	LIF-Net Gate	33-20-237265	Philippe Galle	Halluin, Nord, France
2:2/702	ERANA's PEACE	33-61399198	Pierre A. Sicart	Toulouse, France
2:201/325	Sv Datakonferens V-Haninge	46-750-22112	Jinge Flucht	VAS
2:245/31	SHUTDOWN BBS	49-234-283902	Peter Bankmann	Bochum, NRW, Germany
2:249/10	ALLROUND-BOX	49-6108-78699	Thomas Trede	Muehlheim am Main, Germany
2:249/13	AMBROSIA	49-69-309397	Ulrich Schroeter	Frankfurt/Main-Ht 80, , Germany
2:25/200	FOCUS RESOURCE CENTRE	44-489-577514	George Cordner	Portsmouth, UK
2:28/6	EUROPE-USA-GATEWAY	31-1749-44958	Ben de Goey	Monster, Holland
2:295/3	S-Team	32-3-455-2073	Louis Van Geel	Mortsel, Antwerp, Belgium
2:300/110	StarGate_One	41-22-644808	Thos. Baetschmann	Gland, VAUD
3:633/369	City Limits BBS	61-3-762-4088	Bernard Holkner	Boronia, Victoria, Australia
3:633/377	COMET BBS	61-3-879-0108	Mark Dods	Melbourne, Victoria, Australia
3:640/702	Grammar BBS	61-77-72-6052	Barry Taylor	Townsville, Queensland, Australia
3:711/680	Computing Out West BBS	61-68-62-5145	Mark Livingston	Parkes, NSW, Australia
3:712/265	The FORUM BBS	61-2-522-0635	Simon Foster	Sylvania Heights, NSW, Australia
3:712/628	EDUCATION DATABASE	61-2-660-8272	Geoff Shearsby	Sydney, NSW, Australia
3:713/601	OzWorld BBS	61-2-891-1886	Terry Smith	Parramatta, NSW, Australia
3:713/620	Mindarri BBS	61-46-55-2058	Jim McGregor	Camden, NSW, Australia
89:682/10	Father Mercredi High BBS	403-791-5527	Gil Espejo	Fort McMurray, Alberta, Canada
89:682/10	NMD Maximus HST	403-743-9330	Bruce Anderson	Fort McMurray, Alberta, Canada
89:682/11	Westwood High BBS	403-791-2038	Steve Larson	Fort McMurray, Alberta, Canada

For more information on K12Net, contact Jack Crawford, Wayne-Finger Lakes Teacher Resource Center, 3501 County Road 20, Stanley, NY 14561; (716)526-6431 voice; (716)526-6495 BBS (Fidonet 1:260/620)

BOARDWATCH LIST OF LISTS

BBS LIST TOPIC	LIST AUTHOR/EDITOR	CONTACT BBS	TELEPHONE
Republic of South Africa	Henk Wolsink	Catalyst BBS	(041)34-1122
Darwin National BBS List	Meade Frierson	USBBS Update Line	(202)547-3037
Autocad Related BBS	Jason Osgood	Alacrity BBS	(206)643-5477
Maine BBS	Eric Rodzen	MaineNET BBS	(207)767-1273
Astronomy/Space BBS	John Pickens	Starbase III BBS	(209)432-2487
NY/NJ/CT/PA/DE	Network One BBS	(212)628-5486
Graphical User Interface BBS	David Shapiro	The Goocy (GUI) BBS	(212)876-5885
Southern California	Mike Hefferman	SOCAL Corner	(213)422-7942
Dallas/Ft Worth Area 213/817	Mark Robbins	Second Sanctum	(214)296-8766
Open Access UNIX Sites	LGNP1 (login:GUEST)	(215)348-9727
Area Code 609 - New Jersey	Ron Brandt	Satalink BBS	(215)364-3324
Area Code 215 - Philadelphia	Ron Brandt	Satalink BBS	(215)364-3324
Cleveland Area 216	Eric Rickin	Wine Cellar	(216)382-2558
Handicapped Issues BBS	Richard Barth	HEX BBS	(301)593-7357
Baltimore Area 301	Phillip Bailey	Baltimore BBS News	(301)633-7870
Medical Issues BBS	Edward Del Grosso	Black Bag	(302)731-1998
Detroit Area 313	Horst Mann	Tony's Comer	(313)754-1131
Engineering Related BBS	Arthur Petzelka	Computer Plumber	(319)337-6723
Rhode Island Area 401	Mike Labbe	Eagle's Nest	(401)732-5292
Atlanta Area 404	Online Atlanta Society	OASIS	(404)627-2662
Atlanta Area 404	Rodney Aloia	INDEX System	(404)924-8472
South Florida Area 305/407	Eric Thav	Silicon Beach BBS	(407)276-3750
Milwaukee Area 414	Jim Belot	The Keep BBS	(414)372-3488
Arkansas Area 501	Bob Underdown	The Gaslight BBS	(501)444-8420
Portland Oregon BBS	Lisa Gronke	DawGone Disgusted	(503)297-9145
New Mexico Area 505	Frank Lerner	Land of Enchantment	(505)822-8162
Texas BBS List	Central Texas Sysops Ass.	Texas BBS List	(512)244-1598
Selected BBS	Joseph Caplinger & Son	J&J's BBS	(513)236-1229
The List National BBS List	James Toro	PDSLO (The List)	(516)938-6722
Area Code 517 - Mid-Michigan	Rick Rosinski/SAMM	Wolverine BBS	(517)695-9952
Wisconsin 608	JW-PC Dataflex.HST	(608)837-1923
South Jersey Area 609	Dave Schubert	The Casino EBBS	(609)561-3377
New Jersey Area 201/609/908	Wayne R. Morton	Praedo BBS	(609)953-0769
MIDI Music BBS	Lee Smith	MIDImaze BBS	(615)877-5528
Massachusetts Area 508/617	Dave Goodenough	Wyzard's Castle	(617)825-3135
Apple II BBS with Internet con	Morgan Davis	pro-sol	(619)670-5379
OS/2 BBS Systems	Pete Norloff	OS2/Shareware BBS	(703)385-4325
Washington DC BBS List	Mike Focke	Interconnect	(703)425-2505
Genealogy Related BBS	Richard A. Pence	NGS-CIG	(703)528-2612
Desktop Publishing BBS	Frank Atlee	Byrds Nest	(703)671-8923
Ontario Area 705	Alex Draper	Cottage Country BBS	(705)835-6192
Amiga BBS Lists	Captain Chet Solace	Exactus Info Service	(707)524-2548
Chicago	Colby Jordan/Peter Anvin	Stillwaters	(708)403-2826
Chicago	David Nathan	HURK BBS	(708)801-0823
Houston Area 713	Ron Crowther	Houston Inline	(713)522-2408
Central California Area 805	Larry Honore	His Board	(805)652-1478
Kansas City Area 816/913	Roy Timberman	Sound Advice	(816)436-4516
Tulsa Oklahoman Area BBS List	Linda Hargraves	Access America	(918)747-2542
U.S.S.R. BBS List	Serge Terekhov	Court Crimson King	7-3832-356722

BOARDWATCH MAGAZINE

Classified Electronic Bulletin Board Advertisements

Advertise your electronic bulletin board/online information service in Boardwatch Magazine. Let our readers know who you are and what you're doing with on-line technology. To order a BBS ad in the Boardwatch Classified BBS ad section, call the Boardwatch Online Information Service at (303)973-4222 and use our online ad entry system. In addition to standard list information, enter up to 255 characters of text describing your online service. - all for \$25 per month. Master Card or Visa.

Bruce's Bar & Grill (203)236-3761 West Hartford, Connecticut since 08/83. Sysop: Bruce Lomasky. Using TBBS 2.1M with 24 lines on MS-DOS 80386 with 300 MB storage. U.S. Robotics at 14400 bps. No fee. Bruce's Bar and Grill has a similar atmosphere to TV's "Cheers". Public, Private, and Over 21 Conference Sections. Many regulars stop by and chat each day. Many online games (some multiuser real time) and thousands of IBM files. Hayes/Telebit/USR 9600

HH Info-Net (203)738 0342 New Hartford, Connecticut since 01/86. Sysop: Lee Winsor. Using PCBoard 14.5 with 9 lines on MS-DOS 80386 with 1600 MB storage. U.S. Robotics at 19200 bps. \$80 Annually fee. Connecticut's finest BBS for Professional, Technical and Business software for the IBM PC. MS Windows and OS/2 programs are our specialty, but we have thousands of other files for the serious PC User. 100's of echo-mail conferences also await your call.

METRO On-line Entertainment System (212)831-9280 New York and Worldwide since 04/88. Sysop: Bruce Kamm & Karl Lherisson. Using DLX 5.5 with 32 lines on MS-DOS 80386 with 780 MB storage. Multitech at 2400 bps. \$35 Quarterly fee. Features International Chat, e-mail, electronic matchmaker, public message boards and more. Local dial access available from 1000 cities worldwide. Database subsystem and library includes City Guide, restaurant and hotel listing, disability info & CDROM

Bucks Telematics (215)493-5242 Yardley, Pennsylvania since 12/83. Sysop: Richard Press, M.D.. Using TBBS 2.1 with 1 line on MS-DOS 80486 with 200 MB storage. U.S. Robotics at 38400 bps. \$3 Monthly fee. Area's premier, full-service BBS with conferences and private messaging. Network "Point" service free to registered users. Enjoy many unique services, online publications and

games. Unlimited downloads. No upload requirement. Register online with c-card.

Pinecliffe BBS (303)642-7463 Pinecliffe, Colorado since 01/84. Sysop: Craig Baker. Using OPUS 1.13 with 4 lines on MS-DOS 80386 with 1200 MB storage. U.S. Robotics at 2400 bps. No fee. FREE BBS! (But for \$20/yr get TWO HOURS PER DAY & NO DOWNLOAD LIMIT!) Lots of files, some oddball echomail conferences. Many online games & tournament! Sysop usually available for chat. 9600 bd HST line at (303)642-0703. Come help us grow!

Sound Doctrine BBS (303)680-7209 Aurora, Colorado since 01/87. Sysop: Tim and Mike. Using TBBS 2.1M with 4 lines on MS-DOS 80286 with 200 MB storage. Supra at 2400 bps. No fee. For serious Christianity only! Where non-believers can ask the questions their Christian friends wish they wouldn't. Free items can be ordered while on-line. Look for the women's echo called Adam's Rib and our international echos. Find out who equals 666

The Eagle's Nest BBS (303)933-0701 Littleton, Colorado. U.S.A. since 03/87. Sysop: Ron Olsen. Using QuickBBS 2.75Gamma1 with 1 line on MS-DOS 80386 with 212 MB storage. U.S. Robotics at 9600 bps. No fee. Winner in the 1990 Nifty Fifty and Top 100 contests. This BBS is not theme based and free to all. Paid memberships offered but not required. 212Meg of file areas and many message boards. All msgs to the Sysop are personally answered. Give us a try.

THUNDERBOLT! (312)248-4822 Chicago, Illinois since 02/91. Sysop: ZEUS. Using Galacticomm 5.1 with 4 lines on MS-DOS 80386 with 105 MB storage. Compudynes at 2400 bps. \$0.60 Hourly fee. NEW rate! Offers BBSing with a classical mythology theme--featuring Special Interest Groves, Oracle of Biorhythms, Quest

for Magic, Cupid's Quivers, Auction Block, Flash Games, The Arena, and Toga Party! SIGs contain Shareware direct from authors!

Chicago SysLink (312)622-4442 Chicago, IL. since 06/81. Sysop: George Matyaszek. Using TBBS 2.1M with 7 lines on MS-DOS 80386 with 130 MB storage. Multitech at 2400 bps. \$20 Annually fee. When you want MORE than thousands of files, hundreds of message Echo's or a few dozen phone lines, give us a call. It takes PEOPLE, not hardware or software to make a system what it really is. Find out what the 'Early Days' of modeming are like today.

Data Central BBS (317)543-2007 Indianapolis, IN since 01/89. Sysop: Doug Scott. Using PCBoard 14.5a/U with 18 lines on Novell Network with 4000 MB storage. U.S. Robotics at 14400 bps. \$45 Annually fee. 950 Conferences, 25,000 files, 18 Lines, 65 Online Games, USA Today, Boardwatch, Livewire CB Chat, huge Adult Gif Selection. Member of PC Relay - North Amerinet - Intelc - Vnet - Interzone - Throbnnet. A very fast BBS 2 386-33's and 18 286-16's.

Career Systems BBS (413)592-9208 Chicopee, MA since 07/90. Sysop: Ed Carroll. Using WildCat 2.55 with 1 line on MS-DOS 80386 with 105 MB storage. U.S. Robotics at 9600 bps. No fee. Free nationwide Job Listings and career advice for professionals in the areas of Data Processing, Engineering, Programming, and Accounting. Member of the National Association of Personnel Consultants, Intelc, and U'NI-net national echoes

Data Point! (501)442-8777 Fayetteville, Arkansas since 01/83. Sysop: Gary W Funk. Using TBBS 2.2M with 4 lines on MS-DOS 80286 with 260 MB storage. U.S. Robotics at 2400 bps. \$30 Annually fee. Data Point! has multi-line chatting, on-line publications, and multi-player games. Large library of SDN, SDS, and TDN files. Support for MS-DOS and

Windows 3.0. TBBS/TDBS/TIMS and TMail support. NetWork, FidoNet, and UUCP message areas.

Cul-de-Sac Bar & Grill (508)429-1784
Holliston, Massachusetts since 03/85.
Sysop: Pete White. Using TBBS 2.1M with 5 lines on MS-DOS 80286 with 380 MB storage. U.S. Robotics at 14400 bps. \$45 Hourly fee. The home of many TBBS/TDBS software packages, and an almost continuous beta site for many TBBS/TDBS software authors. Like Ben Cunningham's 10,000 message system with full screen editing and quoting, and Jeff Johnson's On-Line Sales Manager.

CONNECT AMERICA (512)459-3351
Austin, Texas since 06/84. Sysop: Charles Curtis and Staff (5). Using WILDCAT! Release 3.0 with 10+ lines on MS-DOS 80386 with 5000 MB storage. CompuCom/HST/V.32 at 19200 bps. \$35 mo. \$60Yr. fee. PC-Pursuitable *10Lines + *FAST 16Mhz286/386's *Novice? Voice Line Support for Members*Members Lines almost NEVER BUSY! *FILES=12,000+ *CONFERENCES=100+ *On-Line GAMES=50+ *FUN!*FAMILY and ADULT Memberships *CD-ROMS LIVE! *FRED FISH DISKS *IBM/ MAC/ AMIGA/ OS-2/WIN3*

The P.D.S.L.O. BBS (516)938-6722
Hicksville, New York since 08/86. Sysop: James Toro. Using TBBS 2.1M with 18 lines on MS-DOS 80486 with 3400 MB storage. UDS at 9600 bps. \$35 Annually fee. Home of "THE LIST" National BBS List, Multi-line Chat, Online Games. 2100+ PC-SIG Disks, 600+ PC-Blue Disks. 12000+ Uploaded Files. Infomat, Boardwatch, and USA Today Always Online. No Charge to Look Around!!

The Third Eye (615)226-1553
Nashville, Tennessee since 05/86. Sysop: Michael Vetter and Kathleen Shelton. Using TBBS 2.1M with 3 lines on MS-DOS 80386 with 120 MB storage. Hayes at 2400 bps. \$20.00 Annually fee. An ALL ADULT system serving couples and singles with an interest in the swinging lifestyle. Personal Ads (all lifestyles and orientations), social club news, Photogallery of digitized photos of members, online games, matchmaker, adult downloads, FUN!

THE PROMISED LAND (715)387-1339
715-387-1339 Marshfield, WI since 01/90. Sysop: Tim Brown. Using Custom Major BBS with 16 lines on MS-DOS 80386 with 2500 MB storage. U.S. Robotics at 9600 bps. \$hrly .60-.95 fee. 11,000+ files for WINDOWS, IBM, AMIGA, APPLE, MAC, ATARI, & C64. Active Windows Users Conference/Group. Live Teleconferences, Private E-mail, Online Multiplayer Games, Regional/ National Conferences. 2HR FREE DEMOPAK (say you saw it in BoardWatch!)

STUDIO PC BBS (813)862-8850 Port Richey, Florida since 09/85. Sysop: Ralph LoBianco. Using PCBoard 14.5/E3 with 2 lines on MS-DOS 80386 with 1800 MB storage. U.S. Robotics at 19200 bps. No fee. National FIDONET and EGGNET Messages, XXX Rated Adult Conference, Lots of files, FREE access and No download Limit. Both HST and Dual Standard Modems for

User Access. Online Games. SDN Member. Approved By The Association Of Shareware Professionals.

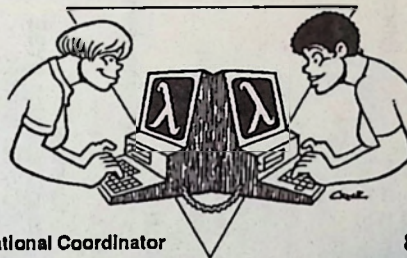
The Super Stud (908)968-7883
Piscataway, New Jersey since 06/86. Sysop: JOD. Using TBBS 2.1M with 8 lines on MS-DOS 80386 with 80 MB storage. U.S. Robotics at 2400 bps. \$39.95 Annually fee. Jersey's Leading Gay Multi-Liner -- Worth The Price Of A Phone Call From Anywhere! GayCom Affiliate. Multi-Line Chat. Public/Private E-Mail. Community News/Info. AIDS/Health files. Shopping Villa. Shareware. Games. Starlinkable. PCPursuitable via NJNBR.



The BACKROOM

**America's Largest Gay/Lesbian
Computer Information Service
CALL US WITH YOUR COMPUTER!**

(718) 849-1614 (modem)



GayCom National Coordinator

**OUR
8th YEAR**

BOARDWATCH MAGAZINE

NATIONAL LIST OF ELECTRONIC BULLETIN BOARD SYSTEMS AND ON-LINE INFORMATION SERVICES - JUNE 1991

SERVICE	PHONE	DESCRIPTION	SPONSOR/SYSOP	LOCATION
ADA 9X Project Bulletin Board	(800)232-9925	ADA Programming Language Revisions and News	Chris Anderson/Susan Carlson	Eglin AFB, FL
ADA Information Clearinghouse	(703)614-0215	Information on ADA Programming Language/Military Specs	Department of Defense	Washington, D.C.
American Cybernetics BBS	(602)968-1082	Multi-Edit Product Support BBS	American Cybernetics	Tempe, AZ
ANARC BBS	(913)345-1978	World Radio/TV Handbook - Short Wave Freq Lists/Scheds.	Assoc. of North American Radio Clubs	KS
Applied Modeling Research RBBS	(919)541-1325	Environmental Protection Agency Atmospheric Models	William Peterson/EPA	Hurdle Mills, NC
Aquila BBS	(708)820-8344	2 GB 14 Nodes Fidonet/Interlink/Metronet MCE IL/CHI Graphics	Kevin Behrens/Steve Williams/Chris Babb	Aurora, IL
Ashton-Tate Technical Support	(213)324-2188	dBase and Multimate Support - CIS HOST NAME:ATBBS	Ashton-Tate Corporation	Torrance, CA
AST Technical Services BBS	(714)727-4723	Superb support system for AST Computer Products	AST Research Inc.	Irvine, CA
AT&T Support BBS	(201)769-6397	Support for PC 6300 and Other AT&T PC Models	American Telephone/Telegraph PC Division	Plainfield, NJ
ATI Support BBS	(416)756-4591	Support for ATI Modems and Video Cards	ATI Technologies	Scarborough, Ontario
Audioophile Network	(818)988-0452	High-end Audio Components, Music, Video Reviews	Guy Hickey/Quatre Speakers	Van Nuys, CA
Automobile Consumer Services	(513)624-0552	New Car Pricing Reports - Used Car Value Reports	Automobile Consumer Services Inc.	Cincinnati, OH
BBS Press Service	(913)478-9239	Home of INFOFAM Online Weekly PC News Magazine	Alan Bechtold/BBS Press Service	Topeka, KS
BellSouth's TUG Gateway	(404)594-3964	Transix Universal Gateway - Atlanta Journal-Constitution	BellSouth	Atlanta, GA
Best Friends BBS	(714)832-5902	DLX Multiline Chat/Match Social/Sexual	Ann and Joe Wiseman	Fountain Valley, CA
Big Peach BBS	(404)446-6650	Home of Automenu and Treeview Software	Marshall Magee/Magee Enterprises	Norcross, GA
Big Sky Telegraph	(406)683-7680	Education/Econ Development Info to Montana rural Communities	Montanna Rural Education Network	Dillon, MT
Bird Info Network	(303)423-9775	Breeding, Raising, Taming, Exotic Birds	Terry Runel/Dave McClaugage	Arvada, CO
Bit Bucket Software BBS 104/501	(303)693-4317	Home of BinkleyTerm Mail Software	Bob Hartman	Aurora, CO
BMUG BBS	(415)849-2684	Support for Macintosh owners - files - conferences.	Berkeley Macintosh Users Group	Berkeley, CA
Boardwatch Magazine Online Info	(303)973-4222	Distribution Service for USA Today/Boardwatch/Closing NYSE	Boardwatch Magazine	Littleton, CO
Book BBS	(215)657-6130	Information on 2000 Computer Books - 800 order number	Business & Computer Book Store	Willow Grove, PA
Bruce's Bar & Grill	(203)236-3761	24-line Social System - Chat - Games - Downloads	Bruce Lomasky	West Hartford, CT
Bucks Telematics 273/201	(215)493-5242	Local, National, International Message Conferences	Richard Press	Yardley, PA
C.A.R.L. Library Service	(303)863-1350	Citations to 2 Million Texts in Colorado Library System FREE	Colorado Alliance of Research Libraries	Denver, CO
Cape Cod Bungalows 101/870	(508)759-1168	Multiline Service - Shopping Mail - Games - Tourist Info	Crowford Communications/Daniel Crawford	Cape Cod, MA
Capital PC User's Group BBS	(703)750-7809	One of the oldest PC User's Groups - 5500 members	Capital PC Users Group/Wes Merchant	Rockville, MD
Castle Tabby 107/412	(201)988-0706	Home of TABBY Fidonet Interface Program for Apple Macintosh	Michael E. Connick	Bradley Beach, NJ
Census Bureau Office Automation	(301)763-4576	Microcomputers and Office Automation	US Dept. of Commerce/Nevins Frankel	Suitland, MD
Census Bureau Personnel Division	(301)763-4574	Employment Opportunities Within the Census Bureau	US Dept. of Commerce/Nevins Frankel	Suitland, MD
Channel 1	(617)354-8873	45-line PCBoard System - 3.7 GB Files - 250 Msg Conferences	Brian Miller/Tess Heder	Cambridge, MA
Chicago SysLink	(312)622-4442	Special Interest Areas for Ferret/Pet Owners. TRS80/Aviation	George Matyaszek	Chicago, IL
chinet	(312)283-0559	Unix System offering Internet Mail	Randy Sues	Chicago, IL
Classi Computer Files	(317)359-5199	Online System for Classified Advertisements	Steve Edsall/Trader Newspaper	Indianapolis, IN
Clean Air BBS	(408)298-4277	Environmental Health/Cigarette Smoking Topics	American Lung Association/Sheila Blash	San Jose, CA
Cleveland Freenet	(216)368-3888	Cleveland City Information/Ohio Governor's Office Online	Case Western University/AT&T/Ohio Bell	Cleveland, OH
CocoNet	(619)456-0815	CocoNet Support/Demo - Hires Graphics BBS for Unix Systems	Brian and Patricia Dear	La Jolla, CA
Comm-Post, The 104/666	(303)534-4646	Astronomy - 725+ MB of Files	Brian Barte	Denver, CO
Compact Audio Disk Exchange	(415)824-7603	Buy/Sell/Trade Compact Audio Disks Online	Wayne Gregori	San Francisco, CA
CompuCom Customer Support BBS	(408)738-4990	Support for CompuComm SpeedModem - 9600 bps - \$279	CompuCom	Sunnyvale, CA
Computer Business Services	(714)396-0014	Computer Columnist John C. Dvorak's office BBS	John C. Dvorak and Nick Anis Jr.	Diamond Bar, CA
Computer Garden	(301)546-1508	Treasure Hunting - Metal Detectors - Online Catalog	Milford P. Webster	Salisbury, MD
Computerized Bulletin Board Sys	(708)849-1132	First Electronic Bulletin Board - Creator of XMODEM Protocol	Ward Christensen	Chicago, IL
Computing Canada Online	(416)497-5263	Adjunct to Excellent Canadian PC Newspaper	Computing Canada Newspaper	Willowdale, Ontario
Corporate Data Exchange (CDX)	(609)683-4422	PR Newswire/ Business Wire. Logon: hello user.cdx	LaFountain Research Corp/Tad LaFountain	Princeton, NJ
Crosstalk Communications BBS	(404)740-8428	Product Support for Crosstalk for Windows/MK4/XVI	Digital Communications Associates	Roswell, GA
CTC IEEE Employment Database	(508)263-3857	Online Database of 20,000 Resumes for Engineering	Career Technologies Corporation	Andover, MA
Cul-de-Sac Bar & Grill	(508)429-1784	Multiline Service - Ham Radio - Humor - TDBS Applications	Pete White	Holliston, MA
CyLink	(719)520-5000	Online Chat/Multiplayer Interactive Games - 12 lines	Klaus Dimmler	Colorado Springs, CO
Dante Project BBS	(603)643-6310	Commentary/Research on Dante's Divina Comedia	Dartmouth College	Hanover, NH
Dark Side of the Moon	(408)245-7726	Home of WAFFLE, Unix UUCP BBS Software for DOS and Unix	Thomas E. Dell/Darkside International	Mountain View, CA
Data Core BBS	(213)447-8600	25 line Major BBS	Matthew Schoen/Delta Enterprises	Los Angeles, CA
Data Point	(501)442-8777	Online Publications - Excellent TBBS System	Gary Funk	Fayetteville, AR
DataLink RBBS System	(214)394-7438	Weather Satellite Imaging, NOAA Satellite Tracking-AMSAT-NA	Dallas Remote Imaging Group/Jeff Wallach	Carrilton, TX

DayDreamer BBS	886-2-3122452	Ten Line Remote Access BBS - Largest BBS in Taiwan	Allen Wu	Tablet, Taiwan
Denver Deaf-Net	(303)989-9245	Hearing Impaired/Computing	David Sheneman	Lakewood, CO
Desert Storm Message Center	(800)955-1249	Military Affiliated Radio Service - Msgs to Desert Storm	Fort Lewis MARS Station/Jeff Lewis	Fort Lewis, WA
DigiBoard Support BBS	(612)922-5604	Multipoint Serial Cards	DigiBoard Incorporated	St. Louis Park, MN
DragonNet 386/451	(409)765-5459	Multiline MAJOR BBS with 4 GB - 64 lines Interactive Games	Robert Michal/Dragon Profit Systems	Galveston Island, TX
East Bay X-Change 372/888	(803)556-7485	Home of XRS Offline Mail Reader	Mike Ralledge	McClennanville, SC
Echo	(212)989-8411	New York Emulation of THE WELL - Unix CAUCUS Conferencing	Stacy Horn/Echo Communications Group	New York, NY
Economic Bulletin Board	(202)377-3870	Economic Statistics/GNP/GPI/Employment, Trade Opportunities	US Department of Commerce	Springfield, VA
Electric Dialectic BBS	(708)705-6774	40 Online Game Doors - Graphic Files	Bruce Johnson	Palatine, IL
Energy Info Admin E-Publications	(202)586-8658	Variety of Petroleum/Coal/Electricity Energy Statistics	US Department of Energy	Washington, D.C.
eSoft Product Support BBS	(303)699-8222	Home of The Bread Board System (TBBS) BBS Software	Phil Becker/Soft Inc.	Aurora, CO
Event Horizons	(503)697-5100	32 Line Digitized Graphics Image Library - Adult GIF files	Jim Maxey	Lake Oswego, OR
Exactus Information Service	(707)524-2548	12,500 Amiga Files - USA Today - Closing NYSE Stocks	David Salas/Robert Cohen	Santa Rosa, CA
Exchange BBS, The	(713)521-2191	Largest Gay/B/Leblian Multiline BBS in Houston	James Craig/John Fields	Houston, TX
EXEC-PC	(414)789-4210	Largest BBS in US - 166 Lines - 70,000 files - 6 Gigabytes	Bob Mahoney	Shorewood, WI
Executive Network	(914)667-4567	Interlink Netmail National Host - Multiline PCBoard System	Andy Keever	Mt. Vernon, NY
Eye Contact BBS	(415)255-5972	22 line Oracom - Gay Issues - Popular Chat System	Bill Montgomery	Mill Valley, CA
Farwest BBS	(604)381-3934	Large Western Canada Galacticom Info System	Ren L'Ecuier	Victoria, BC
FCC Public Access Link	(301)725-1072	Equipment Authorization Status Advisory Service	Federal Communications Commission	Columbia, MD
Federal Job Information Center	(313)226-4423	Federal Job Opportunity Lists available online	US Office of Personnel Management	Detroit, MI
FEDLINK ALIX II	(202)707-9656	Info on Federal Libraries - Excerpts Library of Congress News	Federal Library Information Network	Washington, D.C.
Fido Software BBS 1:125/111	(415)863-2739	The First Fido BBS and home of Fido BBS 12s	Tom Jennings	San Francisco, CA
Fido Tech Stand	31-30-735900	Fidonet Technical Information for Holland	J.J. van der Maas	Utrecht, Holland
FOG City BBS 125/10	(415)863-9697	Gay Community BBS - AIDS Info - Desktop Publishing - MACs	Bill Essex	San Francisco, CA
Fred the Computer	(508)872-8461	Newspaper BBS, Wierdnet Newswire, List of MA Libraries	Middlesex News	Framingham, MA
GDP Technologies	(303)673-9470	Outstanding IBM Shareware on a small system	Tom Getty's	Lafayette, CO
GLIB	(818)706-9805	Support for MAGNUM BBS - OS/2 BBS Software - up to 8 lines	Chuck Gilmore	Thousand Oaks, CA
Greenpeace Environet	(703)578-4542	Gay and Lesbian Information Bureau - 11 Lines - 9600 bps	Community Educational Svcs. Foundation	Arlington, VA
GT PowerComm BBS	(415)512-9108	Ecological and Peace Issues - Disarmament/Toxics/Wildlife	Dick Dillman/Greenpeace	Houston, TX
Hay Locator	(713)772-2090	Home of GT Power Communications Software	Paul Melners/P&M Software	
Hayes Advanced Systems Support	(317)494-6643	Database of Hay/Straw Suppliers and Buyers	Purdue Univ. Agricultural Computer Net	
Herpnet/Satronics TBBS	(800)874-2937	Customer Support Line for Hayes Customers, V-series/Ultra	Hayes Microcomputer Products	Norcross, GA
HH Info-Net BBS	(215)698-1905	Reptile and Amphibian Studies - Poison Snakes/Toads/Fish	Mark Miller	Philadelphia, PA
HOLLIS	(203)246-3747	MS Windows and OS/2 Files our specialty	Lee Winsor	New Hartford, CT
IBM National Support Center BBS	(617)495-9500	Harvard On-Line Library Information System - 7E1 VT100	Harvard University	Cambridge, MA
Imaging GraphicsLine BBS	(404)835-5300	Paradise/Verticom Graphics Products - GIFs	IBM National Support Center	Atlanta, GA
Inbound/Outbound/Telereconnect	(415)968-1834	Telephone Sales Trade Magazine Online Service	Western Digital	Mountain View, CA
Index Systems	(212)989-4675	Excellent list of Atlanta BBS systems online	Harry Newton Publications	New York, NY
Infinity World	(404)924-8414	8 line Galacticom System - Many good text publications	Rodney Aloia	Marletta, GA
InfoHost Demo BBS	(606)271-8556	Demo BBS for InfoHost BBS Software - Multiline - Database	Daniel Diachun	Lexington, KY
Intel PCEO Support BBS	(201)288-7792	Support for Intel PC Products - Inboard 386/AboveBoard 286	A-Corm Electronics Inc.	Hasbrouch Heights, NJ
Invention Factory	(503)645-6275	32 Lines - 100 Directories - Good Shareware Catalog 3.2 GB	Intel Corporation PCEO Division	Hillsborough, OR
Investor's Online Data	(212)431-1194	Online Investment/Stock Market Information/Tech Analysis	Mike Sussell	New York, NY
JAG-NET	(206)285-5359	Navy Judge Advocate General's Information Network	Don Shepherdson	Bellevue, WA
JDR Microdevices BBS	(703)325-0748	7E1 Pilots Weather Service - NWS Data and Maps	US, Dept. of Navy / Chris Buechler	Arlington, VA
JEPPLINK	(800)767-7000	Online Job Listings - 2186 Technical Pos. - 10,000 Corps.	JDR Microdevices	San Jose, CA
JOBS	(404)992-8937	Colorful Spitfire BBS in Puerto Rico	Jeppeson Data Plan Inc.	Los Gatos, CA
Joe's Place BBS 1:367/15.6	(809)254-3566	Prime Rate-Fed Funds-T-Bill-Discount Rate-Economic Data	Alpha Systems Inc./Bill Griffin	Roswell, GA
KIMBERLY BBS	(612)340-2489	400 MB Books, Writers Area - TRS 80 Support	Jose Frlas	Lajas, PR
King's Market BBS 104/115	(303)665-6091	Support for LANtastic local area network	Federal Reserve Bank of Minneapolis	Minneapolis, MN
LANtastic BBS	(602)293-8065	Home of GENESIS BBS Software - Multinode LANable.	Jim and Karen Burt	Boulder, CO
Late Night BBS	(315)592-7300	Home of UFGATE - Software to connect PCs to UUCP/Usenet	Artisoft Inc.	Tucson, AZ
Late Night Software 125/555	(415)695-0759	Support for Leading Edge Computer Owners	Carter Downer	Hannibal, NY
Leading Edge Auto Info Line	(509)836-3967	Legal Issues/Forms - Law BBS List	Tim Pozar	San Francisco, CA
LegalEase	(509)326-3238	Libraries of Univ. of Minnesota Integrated Net Access7E1VT100	Leading Edge Computer	Westborough, MA
LUMINA	(612)626-2206	Support/Demo System for Magpie BBS/Conferencing Software	Bill Sorcinelli	Spokane, WA
Magpie BBS	(212)420-0527		University of Minnesota	Twin Cities, MN
			Steve Manes	New York, NY

BOARDWATCH MAGAZINE

NATIONAL LIST OF ELECTRONIC BULLETIN BOARD SYSTEMS AND ON-LINE INFORMATION SERVICES - JUNE 1991

SERVICE	PHONE	DESCRIPTION	SPONSOR/SYSOP	LOCATION
Maxi-Micro Ticker/Screen	(212)809-1160	2000 Closing Stock Quotes/Market Research/Order Entry	Max Ule & Company	New York, NY
Maxtor Technical Support BBS	(303)678-2020	Installation/Troubleshooting/Support for Maxtor Hard Disks	Maxtor Corp./Chris Bowers	Longmont, CO
McAfee Associates BBS	(408)988-4004	Computer Virus Information - VIRUSCAN and CLEANUP Programs	John McAfee/CVIA	Santa Clara, CA
METRO Online Entertainment	(212)831-9280	32 line DLX with City Guide/Ski Database - Matchmaker - Chat	Bruce Kammi/Metro Online Services	New York City, NY
Micro Foundry, The	(415)598-0398	2.2 GB Downloads - Your Online Software Source - Boardwatch	Thomas Nelson/Clockwork Software	San Jose, CA
Micro Message Service	(919)779-6874	USA Today/Boxoffice Magazine - Large Download Area	Mike Stroud	Raleigh, NC
Micro Tech BBS	(314)334-6359	Support for OSIRIS Multiline BBS Software - IRIS Mail	Micro Tech	Cape Girardeau, MO
Microlink B	(303)972-9800	1 Gigabyte of IBM Software - Multiline - USA Today News	Girard Westerberg	Littleton, CO
Microrim Technical Support BBS	(206)649-9836	Support for Popular R-Base Relational Data Base System	Microrim Corporation	Redmond, WA
Microsoft Product Support BBS	(206)646-9145	Word/Works/Multiplan/Flight Simulator Application Notes	Microsoft Corp/Scott J. Honaker	Bellevue, WA
Microsystems Software Inc.	(508)875-8009	HandiWare Software for Handicapped - CodeRunner C Utilities	MSI - Reed Lewis	Framingham, MA
Minnesota Spacenet	(612)920-5566	Minnesota Space Frontier Society - NASA News	Ben Husset	Minneapolis, MN
NBEMR Ham BBS	(614)895-2553	login:hbbs HAM Radio/AMSAT Unix System - Satellite/Packet	Giary Sanders	Westerville, OH
NARDAC BBS	(804)445-1627	Zenith Computer Support - List of Federal Micro User Groups	Navy Regional Data Automation Center	NAS Norfolk, VA
NASA Headquarters Info Tech	(202)453-9008	Shareware and Technical Info for NASA PC users.	National Aeronautical and Space Admin.	Washington, DC
NASA Spacelink	(205)895-0028	NASA Educational Affairs Div. - Flight Data/Space History	Marshall Space Flight Center	Huntsville, AL
Nashville Exchange	(615)383-0727	8 line TBBS - Games/TBBS Software Development	Ben Cunningham	Nashville, TN
National Agricultural Library	(301)344-8510	Agricultural Info/Research Resources	US Department of Agriculture	Beltsville, MD
National Genealogical BBS	(703)528-2612	Family History - Genealogical Research - Gravestone Haunting	National Genealogical Society	Arlington, VA
Nautilus BBS	(316)365-7631	32 Line TBBS with 5 GB of Files on 80486, CD/WORMS	Nautilus Communications	Iola, KS
NAVWESA	(202)433-6639	Naval Weapons Engineering Support	Dept. of Navy / Bill Walsh	Washington, D.C.
Network World Bulletin Board	(508)620-1178	LAN and WAN Issues and Technology	Network World Magazine/CW Communications	Framingham, MA
Neuropsychology Bound 157/3	(216)356-1431	Support Groups for Disabled/Physically Impaired	Butch Walker	Rocky River, OH
NIST ACTS	(303)494-4775	Automated Computer Telephone Service - Sync PC to NBS Time	Nat. Institute for Standards/Technology	Boulder, CO
NIST Computer Security	(301)848-5717	Computer Security and Virus Protection Issues	Nat. Institute for Standards/Technology	Gaithersburg, MD
Nixpix	(303)920-1263	Large Library of Adult GIF Graphics Images	Nick De Wolf	Aspen, CO
NOAA Space Environment Lab	(303)497-5042	Solar Flare/Geomagnetic Data Online	National Oceanographic/Atmospheric Admin	Boulder, CO
NoGate Consulting	(616)530-3392	Home of PAK archive utility	Mike Neuhaus Gus Smedstad	Grand Rapids, MI
Numisnet	(301)498-8205	Collecting of Coins, Medals, and Exonumia	The Mitchell Group	Laurel, MD
OASIS BBS	(404)627-2662	Home of Atlanta Bulletin Board List - ABBL	Robert Orr/Online Atlanta Society	Dacula, GA
Occupational Health/Safety BBS	(212)385-2034	Job Safety Issues for Artists, Musicians, Entertainers	Mike McCann/Center for Safety in Arts	New York, NY
Odyssey	(818)358-6968	Adult Multiline Chat System - Games - Magazines - Downloads	Michael Allen	Monrovia, CA
OERI BBS	(800)222-4922	Educational Statistics and Data - Performance Stats -	US Department of Education	Washington, D.C.
Old Colorado City Communications	(719)632-4111	Political Discussions - Unix UUCP Public Access - Multiline	Dave Hughes	Colorado Springs, CO
Online Now	(807)345-5522	5 CD-ROMS plus 3MB New Software per Week	Gary Walsh/Tom Haavisto	Thunder Bay, Ontario
Online Sports	(716)688-6537	Large base of Sports Stats for Pro Gamblers	Terry McCraith	Williamsville, NY
Online With Hayes	(404)446-6336	Hayes Public Bulletin Board - Conferences/SIGS/Support	Hayes Microcomputer Products	Norcross, GA
Oracle PC	6108 260-6222	South Australian TBBS Multiline System	Don Crago	Pooraka South Australia
Oracom Support BBS	(619)346-1608	Sales and Support for Oacom Multiline BBS Software	Surf Computer Services	Rancho Mirage, CA
Osprey's Nest	(301)989-9036	Birdwatching, Bird feeding, Naturalist/Ecology Issues	Fran and Norm Saunders	Colesville, MD
P.D.S.L.O. BBS	(516)938-6722	Home of THE LIST National BBS List	James Toro	Hicksville, NY
PacComm BBS	(813)874-3078	Packet Radio Equipment Supplier - TNC/PSK Modems	Gwyn Reedy/PacCom Inc.	Tampa, FL
PC Ohio	(216)381-3320	Shareware library with 100% USR HST access - 5 years up	Norm Henke	Cleveland, OH
PHYSICS Forum BBS	(413)545-1959	Physics and Astronomical Sciences	Univ. of Mass. Dept. of Physics/Astronomy	Amherst, MA
Pinecliff BBS 104/28	(303)642-7463	Large Shareware Library/Echomail Conferences since 1985	Craig Baker	Pinecliffe, CO
PKWare BBS	(414)354-8670	Home of PKZIP 1.10 Compression Utility	Phil Katz/PKWare Incorporated	Glendale, WI
Pleasure Dome	(804)490-5878	Sexually Explicit Fantasy Chat System - Adults only	Tom Terrific	Tidewater, VA
Popular Mechanics Online BBS	(212)582-8369	Automotive, Home/Shop, Electronics/Photography, Science	Popular Mechanics Magazine	New York, NY
PowerNet	(407)834-3326	Commercial Distributor for REMOTE ACCESS BBS software.	Richard T. Brannon	Altamonte Springs, FL
Practical Peripherals BBS	(818)706-2467	Support BBS for Practical Peripherals Modems	Practical Peripherals	West Lake Village, CA
ProComm Support BBS	(314)474-8477	Home of ProComm 2.4.3 and ProComm Plus Comm Prgrms	Thomas Smith/DataStorm Technologies Inc.	Columbia, MO
Promised Land, The	(715)387-1339	16-Line/2.5GB/11,000+ Files/ WINDOWS, Chat & More	Tim Brown/Computer Solutions	Marshfield, WI
Public Brand Software BBS	(317)856-2087	Commercial Shareware Vendor	Public Brand Software	Indianapolis, IN

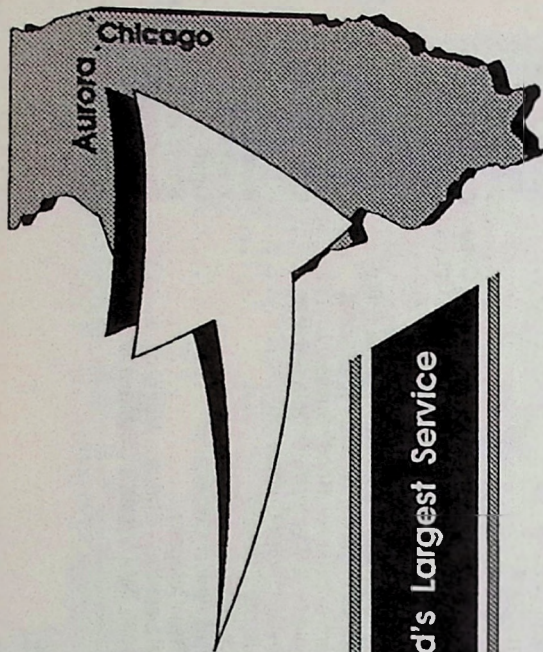
Qualitas, Inc. BBS (301)907-8030
 QuickBBS Support BBS 363/34 (407)896-0494
 Radio Electronics BBS (516)293-2283
 Random Access Information Svc. (503)761-8100
 Remote Access HQ 3:690/625 61 9 389 8048
 RGB Computing (519)824-3997
 Rose Media (416)733-2780
 Rusty & Edles (216)726-0737
 Salt Air BBS (801)261-8976
 Science Resource Studies BBS (202)634-1764
 Scooters Scientific Exchange (215)657-5586
 SEABOARD (201)473-1991
 Seagate Technical Support BBS (408)438-8771
 Searchlight BBS (516)689-2566
 SemWare Support BBS (404)641-8968
 Short Line 104/36 (303)778-7812
 Sistema Profesional Informacion 525 590-5988
 SNAFU BBS (202)547-6238
 Society for Technical Comm. BBS (703)522-3299
 Sunshine Express BBS (415)651-2440
 Sound Advice BBS (816)436-4516
 Southern Arizona Birding BBS (602)881-4280
 Star-Link Network BBS (718)972-6099
 State and Local Emergency Mgmt. (202)646-2887
 Stillwaters BBS (708)403-2826
 Talk Channel (818)506-0620
 TAXACOM (716)896-7581
 TEAMATE Unix Bulletin Board (213)318-5302
 Telegodzilla (503)621-3746
 Telex Support BBS (415)364-8315
 That Old Frog's Swamp (416)439-8293
 The Back Room (718)849-1614
 The Business BBS (213)477-0408
 The Ledge PCBoard (818)352-3620
 The Other BBS 1:1/0 (717)657-2223
 The Professional System (303)740-2223
 The Well (415)332-7190
 Trinity 1 BBS 44 392 410210
 TurboTax Support BBS (619)453-5232
 Twilight Zone (415)352-0433
 U.S. Robotics - Slt UBU Slt (708)982-5092
 US Naval Observatory BBS (202)653-1079
 USGS Quick Epicenter Determin. (800)358-2663
 USNO Time of Day for Clocks (202)653-0351
 UT Library Online Catalog (512)471-9420
 VA Property Listing BBS (802)640-2371
 Ventura Professional Forum (408)227-4818
 Ward and Randy's CBBS (312)545-8086
 WeatherBank (800)827-2727
 Western Digital Tech Support (714)753-1068
 Wildcat HQ BBS 210/12 (805)395-0650
 Windsor Manor (203)688-4973
 Word Perfect Customer Support (801)225-4444
 XTree BBS (805)546-9150
 XyQuest Support BBS (508)687-5669
 Zenith Technical Support BBS (800)888-3058

386MAX and BlueMAX Memory Management Software Support
 Product Support for QuickBBS Software
 Radio Electronics Magazine Online Adjunct
 10500 IBM/AMIGA Files - 3000 MaxiPic Graphics
 Home of Remote Access BBS Software
 Multiline Information Service/PC Sales/Large File Selection.
 Excellent Canadian PC Board System-Publications/Conferences
 Large ML PCBoard run by Husband and Wife - NFL/Tradewars
 Home of PCBoard BBS Software - National List of PCB Sys
 Federal R&D Budget - Technical Labor Market Statistics
 Biotechnology/Chemistry/Physics/Astronomy/Space Sciences
 Support system for ARC, SEADOG, and AXE software.
 Installation and Specifications for Hard Drive Models
 Support system for Searchlight BBS Software
 Home of QEdit - A Superb Shareware Text Editor
 Varied Subjects, Fidonet, BinkleyTerm
 Largest BBS in Mexico - Spanish Language TBBS
 Advice for Government Whistle Blowers - Fouled DOD Programs
 STC Job Service, Freelance Registry - Technical Writers
 Family Oriented Christian BBS
 Twenty Line PCBoard with 2 Gigabytes Storage - HST Modems
 Rare Bird Alerts Online - Birdwatching in Southwest
 9-nodes, 2.1GB, link, 75,000 programs
 Hazardous Materials/National Dam Watch/Emergency Info
 Home of Stillwaters Chicagoland BBS List - over 500 systems
 DLX-Based Multiline Chat/Talk Service - Sexual Orientation
 Botany, Herbaria, FLORA ONLINE Newsletter, Latin Translation
 Demo/Support for TEAMATE BBS Software for Unix
 Home of ZModem File Transfer Protocol/YModem/YAM
 DBMS/Dr. Dobbs Journal Magazine Online Service
 Support Service for Telex Communications Software
 Zen Buddhist Monk/PC Consultant
 America's Largest Exclusively Gay DB - Home of Gaycomm
 Microsoft Windows Support
 Home of Telexview Door for PCBoard Systems
 Fidonet Zone Coordinator for North America 1:1/0
 Writers, Lawyers, EDP Auditors
 Unix Conferencing System - \$10 monthly plus \$2.50 Hourly
 Income tax information - Turbotax 1040 program support
 Rare Bird Alerts - Birdwatching
 Support for US Robotics HST 9600 bps Modems
 Time - Date - Sunrise - Sunset - Enter @TCO for Commands
 Earthquake Epicenter Data - Geomagnetsm7E2
 Xlinks ASCII Time String - Sync Your PC to USNO Atomic Clock
 Online Library Card Catalog Listing 3.5 million entries
 List of VA held property foreclosures
 Ventura Publisher User's Group BBS
 World's First and Oldest Micro-based BBS - Since 2/16/78
 Online Weather Forecasts for Any City - Download Radar Data
 Hard Drive/Controller Installation and Config Data
 Multiline Support System for Wildcat BBS Software
 Over 27 Online Adventure Games
 Word Perfect 4.2/5.0/5.1 Support/Printer Drivers
 Support for XTree Pro Gold DOS Shell Program
 Support for XyWrite Word Processor - Custom Keyboard Files
 Technical Support for Zenith Desktop and Laptop Units

Qualitas Inc. Bethesda, MD
 Richard Creighton/Steve Gabrilowitz Orlando, FL
 Gernsback Publications Farmingdale, NY
 Janice Stevens Portland, OR
 Andrew Milner/Continental Software Perth, Western Australia
 Ronald Spencer - RGB Computing Guelph, Ontario
 Vic Kass Willowdale, Ontario
 Rusty and Edwina Hardenburgh Boardman, OH
 Clark Development Company/David Terry Murray, UT
 National Science Foundation Washington, D.C.
 Brian Molcover Willow Grove, PA
 System Enhancement Associates Wayne, NJ
 Seagate/Shelley Tolch Scotts Valley, CA
 Searchlight Software Stony Brook, NY
 Sammy Mitchell/SemWare Software Products Marietta, GA
 Allan Applegate Denver, CO
 Tecnologia Uno Cero S.A. de C.V. Mexico City
 Greg Williams/Project on Military Proc. Washington, D.C.
 Society for Technical Communication Washington, D.C.
 Anton Johnson Fremont, CA
 Roy Timberman Gladstone, MO
 Chuck and Sharon Williamson Tucson, AZ
 Michael Keylin Brooklyn, NY
 Federal Emergency Management Agency Washington, D.C.
 Colby Jordan (BBS) Peter Anvin (list) Orland Park, IL
 Gary Clarkson North Hollywood, CA
 Clinton Herbarium, Buffalo Museum Buffalo, NY
 Bob Baskerville/MMB Development Corp. Manhattan Beach, CA
 Chuck Forsberg/Omen Technology Incorp. Portland, OR
 M&T Publishing Redwood City, CA
 Collin Sampaleanu/Exis Incorporated West Hill, Ontario
 Ryugen Fisher/The Old Frog Rhinelander, WI
 Arlie Kohn Richmond Hill, NY
 Jim Appleby Los Angeles, CA
 Joseph Sheppard Tullunga, CA
 George Peace Harrisburg, PA
 Bob Voorhees Littleton, CO
 Whole Earth Lctronic Link Sausalito, CA
 John Burden Exeter Devon, U.K.
 Chipsoft Inc. San Diego, CA
 Keri Jones San Leandro, CA
 U.S. Robotics Corporation Skokie, IL
 US Department of Commerce US Naval Obser Washington, D.C.
 US Geological Survey Earthquake Info Cnt Denver, CO
 US Naval Observatory Washington, D.C.
 University of Texas at Austin Austin, TX
 Veterans Admin - Phoenix Regional Office Phoenix, AZ
 Gene Rodrigues - Ventura Professional San Jose, CA
 Ward Christensen/Randy Sues Chicago, IL
 Steve Root/WeatherBrief Data Services Salt Lake City, UT
 Western Digital Corporation
 Mustang Software Bakersfield, CA
 Jim Taylor Windsor, CT
 Word Perfect Corporation Orem, UT
 XTree Company San Luis Obispo, CA
 XyQuest Inc. - Christine Madsen Bellerica, MA
 Zenith Data Systems Customer Service Chicago, IL



AQUILA BBS



(708) 820-8344 Chicagoland's Largest Service

What Is Aquila BBS?

Aquila BBS is the Chicago area's largest telecommunications service and Electronic Mail Center. Offering a host of services organized and well maintained for the user since 1988.

Easy To Use

Aquila BBS is colorful, reliable and very user friendly. Novice users will find most commands are 1 or 2 letters and very easy to remember. A menu of commands is always available along with both on-line and off-line help.

Information

We keep you up-to-date on the happenings at Aquila BBS. Items of special importance to our users are displayed as you log on: system & hardware upgrades as well as future enhancements. Our bulletin area will give you more specific information about the system, subscription rates, the most popular programs available, the current phone numbers, help for new users and other important information specific to Aquila BBS. Our conference areas give you a place to exchange ideas, get hints, help and opinions from other computer users across the country.

On-Line Services

Information from USA Today Decision Line, the nation's newspaper is available. As well as Boardwatch Magazine, one of the best modem users reference tools for our fast moving industry. This information is ready for reading on-line or can be downloaded for off-line reading.

Programs

Tens of thousands of programs populate our 3.5 gigabytes of drive space. We offer the latest in shareware, freeware, public domain, demos of the newest commercial programs and thousands of beautifully digitized pictures. These are just a few of the types of files you could find on Aquila BBS.

DOS & System Utilities

PC Diagnostics

OS/2 Utilities

File/Hard Drive Utilities

Printer Utilities

Novel and Lan Utilities

Windows 3.0 Programs

Desktop Publishing

CAD Utilities

Word Processing

Home/Cooking/Health

Humor & Jokes

Genealogy

Astronomy

Music/Midi

Business/Finance/Tax

Database/Spreadsheets

C/Basic/ASM/Pascal

Animations

Arcade/Classic Games

Communication Programs

Conferences & E-Mail

We offer hundreds of conference areas for your enjoyment, general discussion, computer related, vendor and specific product support, programming language support and adult related topics. You can virtually have any question answered here and join in on lively discussions with people from across the country. We also publish our own "E-Mail Directory" that is sent to all that drop in for a visit. This report lists all our conferences by category and gives a brief description of the topic of each conference. The QMail Door and Mark Mail Doors are also available to help you get the most of these areas.

Subscription Information

Aquila BBS is user supported. We offer access to new callers to explore the wealth of information and services offered here. Feel free to download our latest conference and file directory listings, and take a look around. We are confident you will find Aquila BBS to be the most diverse BBS in the Chicagoland Area. We offer several membership options starting from \$30.00 to fit your on-line needs. Subscribe on-line with your Visa/MC/Amex for instant access! Or mail check/money order with your name and password to:

Aquila BBS

4430 East New York St. Ste. 201
Aurora, IL 60504

Set Your Modem at 8 data bits, No Parity, 1 Stop Bit

Aquila prices and specifications subject to change without notice.

MICROLINK B

Multiline BBS (303) 972-9600

OVER 90,000!
OVER ~~60,000~~ FILES FOR YOUR IBM
OR COMPATIBLE COMPUTER!

WHAT IS MICROLINK B?

Microlink B is the largest electronic Bulletin Board System (BBS) in the area, specializing in files and message services for the IBM-PC, XT, AT and compatible systems.

Microlink B has been serving the serious BBS consumer for five years with quality public domain and shareware software, as well as interesting and informative message areas covering a variety of topics.

LOTS OF FILES!

Your membership to Microlink B gives you immediate access to one of the finest and most complete software collections you'll find anywhere. There are presently over ~~60,000~~ ^{92,880} individual files conveniently categorized and packaged for efficient downloading to your computer.

We DO NOT provide software for the Mac, Amiga, or other non-IBM compatible computers. Why? We think it's better to put all our efforts into providing you with the absolute best software collection for your IBM-PC or compatible system.

Even though our software collection is pretty impressive the way it is, we are always working to make it even better. We are constantly adding new software and updating existing software with newer versions. With over 1,140 megabytes of on-line file storage capacity, you'll have access to everything from games to statistical calculation packages, database programs to personal finance managers, programmer's tools to communications utilities.

MESSAGES AND E-MAIL TOO!

We don't stop with our files collection. The Microlink B message base is connected to the world via the FidoNet public amateur network. We 'echo' many of our message areas to other Fido systems in the area, across

the country, and around the world. Our message areas cover a variety of interesting topics from programming and technical issues to law, from aviation to using Lotus-123 and dBase, and much more. And, yes, we do offer private E-MAIL message areas where you can leave confidential messages for other Microlink B members.

USA TODAY ON-LINE

Microlink B also offers USA Today's Decisionline, a computerized version of the popular USA Today newspaper. Decisionline is updated early every weekday morning.

TAKE A TOUR OF MICROLINK B TODAY

You can access Microlink B anytime to take a test drive. Set your communications program for 8 data bits, no parity and one stop bit (refer to instructions for your modem or communications software). Dial Microlink B at (303)-972-9600. Microlink B will ask for your full name, then guide you along the way with easy to follow menus and instructions. You'll be able to tour the system, look over our software collection, and read messages. All telephone lines connected to Microlink B operate at 1200, 2400, or 9600 baud. 9600 baud requires the use of an HST compatible modem.

BECOME A MICROLINK B MEMBER

For just \$35.00 you can have full access to Microlink B for one year, or pay just \$25.00 for six month access. You can register on-line with your Visa or MasterCard, you can download our mail-in registration form, or use the handy order form below.

Prices and specifications are subject to change without notice.

Registration Form Microlink B (303) 972-9600
P.O. Box 620247 - Littleton, Colorado 80162
YES! I want FULL access to Microlink B!

____ One Year \$35.00 ____ Six Months \$25.00

____ Check Enclosed ____ Visa ____ MasterCard

Credit Card # _____

Expiration Date _____

Signature _____

Name _____ Date _____

Address _____

City _____ State _____ ZIP _____

Telephone (____) _____

Name you will use for BBS Logon:

First _____ Last _____

Password _____

Boardwatch Magazine
5970 South Vivian Street
Littleton, CO 80127

BULK RATE
US POSTAGE
PAID
BOULDER, CO
PERMIT NO. 697

Last Issue: December 1991
Chris Anderson
8160 1/2 Ave Court
Longmont, CO 80501

FAX THIS ORDER FORM TODAY - 1-303-973-3731

SUBSCRIBE TO BOARDWATCH MAGAZINE

Boardwatch Magazine provides the most concise, comprehensive, and timely information available on electronic bulletin board systems and the emerging cottage industry in online information services. Boardwatch Online Information Service provides Boardwatch back issues to January 1988 with keyword search database, extensive listings of thousands of online services from around the world, pre-formatted dialing directories, communication programs and utilities, reviewed shareware programs, and a wealth of online text periodicals - all on a multi-line information service.

Name: _____

Street Address: _____

City: _____ State: _____ Zip: _____

Logon Name: _____ Password (8 chars max) _____

MC/VISA. _____ Expires: _____

- | | |
|--|---|
| <input type="checkbox"/> One Year U.S. Printed Magazine - \$36 | <input type="checkbox"/> One Year U.S. With Online Service - \$60 |
| <input type="checkbox"/> Two Year U.S. Printed Magazine - \$59 | <input type="checkbox"/> Two Year U.S. With Online Service - \$89 |
| <input type="checkbox"/> One Year Canada/Mexico - Online Service Included - \$69 | |
| <input type="checkbox"/> One Year Overseas - Online Service Included - \$99 | |

Send your subscription check/MO to **BOARDWATCH MAGAZINE**, 5970 South Vivian St., Littleton, CO 80127. You may charge your subscription to MC/Visa online by dialing (303)973-4222 (8N1) by modem or complete and fax this form to (303)973-3731.